

Manufacturers Record

Cut Out Needless Expense

New appropriations so far for defense total over \$5 billion, and as this is written it is expected the President will ask another \$5 billion to meet additional requirements for the army. There must be more taxes in addition to the bill just passed, and the suggestions discussed in Congress include the reenactment of the excess profits tax which was in effect from 1917 to 1921, and assessed taxes up to 60 per cent of net income in excess of 33 per cent of capital.

Higher taxes are necessary to meet new and extraordinary expense, but it is an immediate duty of Congress to reconsider the suggestion of Senator Byrd that unnecessary expenses be cut. Surely some of the visionary reform ideas that have cost so much can wait for a better day. There is a crisis and it is preposterous to continue dawdling with extravagant schemes that have not worked except to give jobs to hangers-on.

There is a limit to the ability of even the richest country in the world to pay the huge sums that are being voted and keep up with all the wild spending that has been going on. It is a safe bet that half the bureaus in Washington could be thrown out with their tens of thousands of employees and the country would be better off, even without counting the vast amount of money that would be saved.

Those who have observed the government's increasing red ink balance in recent years know we will be so far in the hole of debt before long that men now young will grow old and die before our Federal financial affairs are straightened out.

The situation demands correction. Save unnecessary expenses while we are spending so much for necessary ones.

JULY 10

Los Angeles Public Library,
Serials Division,
530 S. Hope St.,
Los Angeles, California.

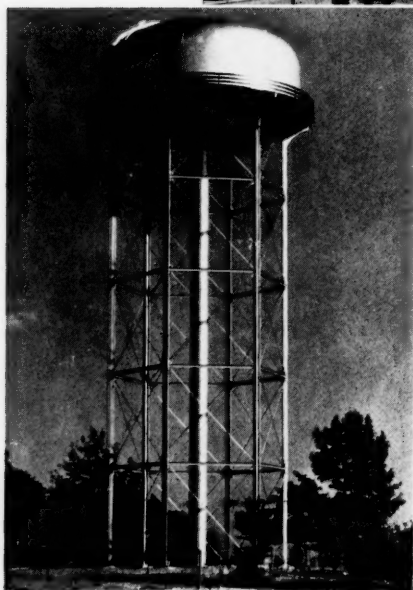
WINSTON-SALEM *Improves Pressure* with **THREE NEW ELEVATED TANKS**



ABOVE: 50,000-gal. Horton ellipsoidal-bottom tank installed in the southern section of Winston-Salem.



CENTER: 88 ft. diam. radial-cone bottom tank, centrally located. It has a capacity of 1,000,000-gals.



LEFT, BELOW: 200,000-gal. radial-cone elevated water tank with 16½ ft. range, located in a northern section of the city.

TO give its 95,000 residents an ample supply of water at all times, the City of Winston-Salem, N. C. has modernized and improved its water system by increasing certain distribution lines and by the addition of the three elevated water tanks shown above. This is another instance showing the efficiency of elevated water storage in providing a dependable reserve of water with little difference in pressures throughout the system.

Before the installation of the three Horton elevated tanks, water was stored in two standpipes. The capacity of these was inadequate and pressures in the mains varied during the day from 5 lbs. to 110 lbs. per sq. in. In some parts of the city it was impossible to obtain enough water at times. The elevated tanks have eliminated this trouble by maintaining gravity pressure from three points in the water system. The consumption of water varies from 6 to 12 m. g. d. with an average of 7.9 m. g. d. Pumping pressures vary from 115 to 135 lbs. per sq. in., but it is not necessary to operate additional pumps during peak demand periods.

Write our nearest office for recommendations on your storage problems.

CHICAGO BRIDGE & IRON COMPANY

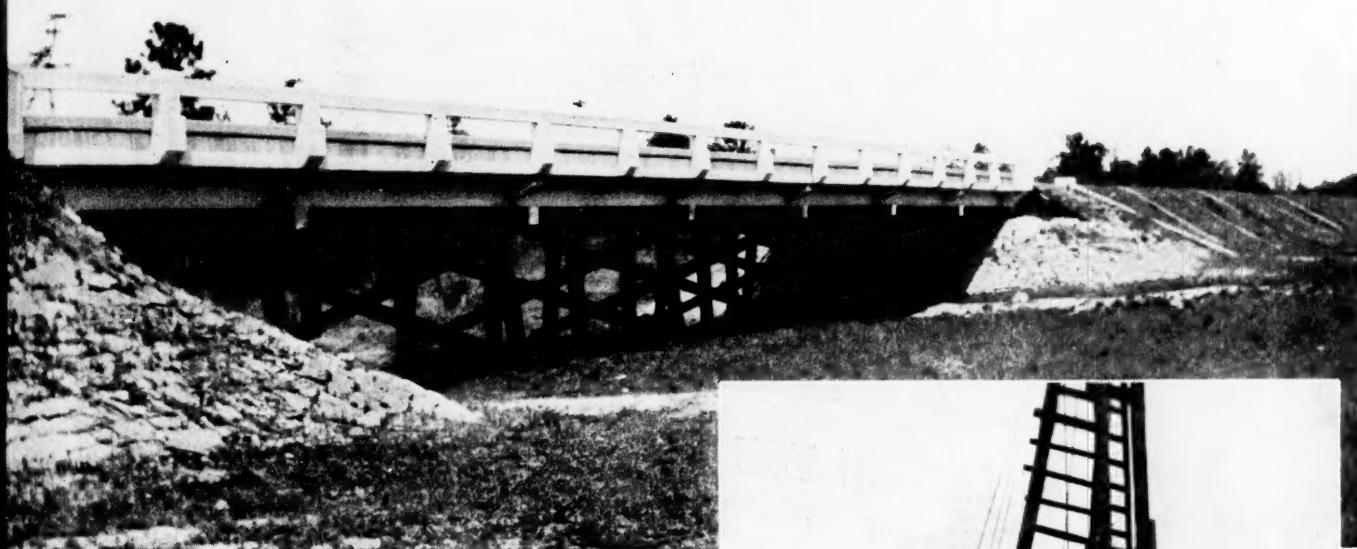
Birmingham1530 North Fiftieth Street
Dallas1608 Praetorian Bldg.
Houston918 Richmond Ave.
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New York3313-165 Broadway Bldg.
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LONG LIFE

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by using

AMCRECO

PRESSURE CREOSOTED

PILES and TIMBER



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CREOSOTING
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INCORPORATED



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CREOSOTING
COMPANY
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ADDRESS INQUIRIES TO CHICAGO, ILL. OR LOUISVILLE, KY.



BE CERTAIN YOU ARE USING THE RIGHT WHEEL FOR EACH GRINDING JOB

● Using exactly the right wheel for each grinding operation pays big dividends in higher production, improved work and lower grinding and wheel costs. That's why Carborundum stands ready to help you make the right selection with every experience and facility at

Our knowledge of the

requirements of each field; extensive product research; advanced manufacturing skill and a corps of highly trained sales engineers who know how to work with customers... these are the things The Carborundum Company offers to help you attain real grinding efficiency.

Why not put this service to work for you now?



THE CARBORUNDUM COMPANY

Niagara Falls, N. Y.

Sales Offices and Warehouses in New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, Pittsburgh, Cincinnati, Grand Rapids
(Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company)

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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

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Member A.B.C.

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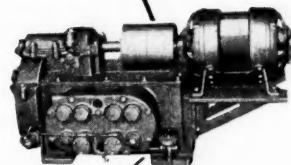
JULY NINETEEN FORTY

... Outstanding
PERFORMANCE

"All-Purpose"

AIR ...
COMPRESSORS

- ★ Efficient
- ★ Reliable
- ★ Durable



Type "N" Compressor

Two cylinder, single-stage, single acting, gear driven. Air-cooled for intermittent operation, "NB"; water-cooled cylinder heads for continuous operation, "NWB". Has positive and reliable unloader for A.C. motor drive. Sizes 12½ to 100 cu. ft. Pressures from 30 to 150 lbs. Catalog T2048. Write for information and prices.



Many other types and sizes available, up to 200 cu. ft. ... There is one in this extensive line to meet your specific needs.

70 Years Experience

Westinghouse ...

AIR BRAKE CO.

Industrial Division

PITTSBURGH, PA.

A CHALLENGING TASK FOR ALL AMERICAN INDUSTRY

industrial mobilization for defense

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ALABAMA
ARKANSAS
FLORIDA
GEORGIA
KENTUCKY
LOUISIANA
MARYLAND
MISSISSIPPI
MISSOURI
NORTH CAROLINA
OKLAHOMA
SOUTH CAROLINA
TENNESSEE
TEXAS
VIRGINIA
WEST VIRGINIA
THE SOUTH

The South possesses virtually every factor necessary for an industrial expansion designed to meet this country's defense needs—a program that will include every one of the South's sixteen states—see article in this issue.

New plants of many kinds will be built in this section for both peace and war time needs, following a definitely established trend of recent years. Old plants will be modernized and many expanded, requiring the purchase of all types of machinery, supplies and equipment. The South assumes an important place among the industrial markets of the country.

The executives responsible for these purchases follow the MANUFACTURERS RECORD closely and hold it in the highest esteem. Recognition of the value of its work is given by the War Department in its full use of all factual information concerning the South.

As a clearing house and focal point for the work of the Southern Industrial Council For Defense organized at an important meeting in Atlanta June 10th this year, attended by more than three hundred industrialists from all parts of the South, the MANUFACTURERS RECORD was unanimously chosen.

A publication covering a market of this importance, with a coverage of the type indicated, and doing a work so well regarded offers an outstanding advertising value to manufacturers selling industrial equipment in this area.

For advertising budgets and schedules for the second half of 1940 and for the year 1941 the MANUFACTURERS RECORD offers unusual values in a constantly expanding market.

MANUFACTURERS RECORD

BALTIMORE, MARYLAND

» » » LETTERS « « « AND COMMENTS

Southern Defense Program

On June 10 in Atlanta, Georgia a meeting was held to coordinate and promulgate efforts of the Southern states in the Nation's National Defense Program.

On page 24 is a resume of this meeting. Meanwhile, the following are extracts from some of the letters received by R. L. Gould, Treas., MANUFACTURERS RECORD the Chairman of the Southwide Committee which was appointed.—Ed.

Virginia's State Chamber of Commerce "For any Service"

"Please call upon the Virginia State Chamber of Commerce for any service that can be rendered from Virginia in connection with your chairmanship of the Southern States Committee on participation in the National Defense Program.

"We are in close touch with the local chambers of commerce throughout Virginia. Through them we can secure such information from Virginia communities as you may require."

VERBON E. KEMP, Exec. Sec.

Virginia State Chamber of Commerce,
Richmond Virginia.

* * *

One Hundred Per Cent Cooperation

"It is hardly necessary for me to tell you that Savannah sympathizes 100 per cent with the purposes you have in mind and you can rest assured of our earnest and continuous cooperation in anything that promotes the national defense.

"Like you, we feel that the national defense program should include the industries, airports and areas of the South. As you are aware, we are expecting there will be an enormous area adjacent to Savannah utilized by the government for the teaching of army airplane pilots and other purposes and here in Savannah we are prepared to cooperate through the Municipal Airport and every other possible way with the administration in its national defense plans.

"We have industries here that can no doubt adapt themselves to playing a part in the national defense and I have no doubt they have already taken steps to that end. Our port, too, should be utilized to as great an extent as possible, as it was during the World War, to avoid congestion at the great Northern ports in the event we should become unfortunate enough to become involved and require large shipping facilities."

THOMAS GAMBLE, Mayor,
Savannah, Georgia.

* * *

Air Field, Plant and Workers Offered

"I am authorized by Hon. I. H. Davis, Chairman, Meriwether County Commissioners, to offer through you to our War Department, The Roosevelt Airport located in Meriwether County approximately two miles North of Warm Springs, Georgia. This Air Field consists of approximately 100 acres, with two runways of 2000' each, also hangar sufficiently large to care for three planes. On this property is located a beautiful old Colonial home consisting of 8 large bed rooms and large kitchen and dining room.

"As you know, Meriwether County is located at the foothills of Pine Mountains with an abundance of soft water available in all sections of the Eastern part of the County.

"At Woodbury is located the largest canning plant for Pimento Peppers in the United States. This plant is operated for only about 90 days during the year. Am sure this plant could be secured for the remainder of the time not used.

(Continued on page 9)

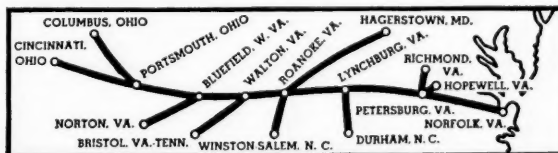
JULY NINETEEN FORTY



THE ROAR of the crowd echoes in the outfielder's ears as he races under the ball for a spectacular catch. Then a flashing throw to home plate for the "put-out". Quick action in the outfield often decides the winner in a ball game . . . and in transportation.

The Norfolk and Western Railway has an efficient staff of "outfielders" located in strategic cities throughout the country. They are trained transportation experts ready for instant action in the service of shippers and receivers of freight. Call on them for complete information about rates and schedules. Let them show you, TOO, how you can profit by using Precision Transportation — the Norfolk and Western Railway's unexcelled freight service between the Midwest and the Virginias and Carolinas and between the North and the South.

For "quick action in the outfield" and "fast service in the infield", specify the Norfolk and Western Railway every time!



NORFOLK
AND
WESTERN
RAILWAY
Precision Transportation

(COPR. 1940 N. & W. RY.)

LET'S TALK ABOUT YOU

FORGET "millions and billions" for a minute. Let's talk about YOU.

A nine-digit number you may be as a social security prospect—but in our business you are "Customer No. 1." So is each of our customers. Millions of electric users there may be. Billions of kilowatt hours may be used. *But it's the one customer and the single kilowatt hour that comes first with us.* One at a time—the character and quality of each of those kilowatt hours, and the service that translates them into useful work, is vital to us and to you—whether to take its turn in running a factory, lighting a home, helping a farmer, or any of the thousand calls that may draw it through the line.

Whether "debt and taxes," food and clothing, power and light—you are concerned with what you pay and what you get. Measure them up. *Your electricity gives you a bigger bargain today than ever before.* More for your money. More uses than ever. Reliability a commonplace. Lower prices. And measured in pennies and fractions. That's not a promise but a

performance—that you can live with and work with and profit by.

How come? You know how—by the enterprise and diligence and experience and consistency of an industry administered and carried on by management and workers and the investing public under American principles of freedom. With regulation, not restriction. And recognition that there is much yet to be done; progress to be continued; new fields of public usefulness to be reached.

Your needs today and tomorrow—whether in industry, commerce or home life—will create the demand. And it's YOU we're on the job for.

PUT THIS AD TO WORK!

● As a customer of a company in the Commonwealth and Southern system, you have in effect another "department" without adding to your payroll or investment—the free services of our power, heating and lighting engineering departments. These trained organizations are at your call in all matters relating to uses and applications of the company services in your operations.

THE COMMONWEALTH & SOUTHERN CORPORATION

ALABAMA • FLORIDA • GEORGIA • ILLINOIS • INDIANA • MICHIGAN • MISSISSIPPI • OHIO • PENNSYLVANIA • SO. CAROLINA

"Letters and Comments"

(Continued from page 7)

"There is also available more than 1,000 men and equally this number of ladies whose services could be secured immediately. "If I can be of further service to you please feel at liberty to command me."

ARTHUR D. JONES, *Mayor*,
Woodbury, Georgia.

* * *

Full Support

"We want to offer our full support and complete cooperation to you as Chairman of the Co-ordinating Committee for gathering data relating to the South for use in the National Defense program.

"We are of course anxious for Mobile to play as important a part as possible in the National Defense Program and it would be a pleasure to hear from you at any time regarding anything we in Mobile might do to be of assistance to you in your work."

R. D. HAYS, *General Manager*,
Mobile Chamber of Commerce,
Mobile, Alabama.

* * *

Valuable Data Available

"Thank you for granting permission to reproduce the address you made in Atlanta on June 10 in the forthcoming issue of SOUTHERN SECRETARY. I know that this will be of decided interest to Chamber of Commerce Secretaries throughout the South.

"I think you will find in most Chamber of Commerce offices in Virginia valuable studies on industrial trends, locations, transportation facilities, and other material which can be utilized to advantage in connection with the survey which you agreed to head. You undoubtedly will hear from the Virginia State Chamber of Commerce within the next few days. Meanwhile, I can assure you of our desire to cooperate either direct or through any central office which might be established for this purpose by the State Chamber."

J. MALCOLM BRIDGES, *Exec. Sec.*,
Richmond Chamber of Commerce,
Richmond, Virginia.

* * *

Pledges Facilities

"Hereto attached is copy of a resolution passed by the State Chamber of Commerce Directorate at Miami, Florida, on June 13th pledging the facilities of this organization in serving the Southern Governors' Conference and the Federal Government in every way possible in promoting and strengthening the National Defense of the United States, and to the end of avoiding war and preserving our free American institutions.

"As president of this organization I want you to know we are delighted and willing to cooperate in any way possible."

CARL D. BROEIN, *President*,
Florida State Chamber of Commerce,
Jacksonville, Florida.

"BE IT RESOLVED:

"That the Directors of the Florida State Chamber of Commerce at their second quarterly meeting of 1940, offer their organization and facilities to serve the Southern Governors' Conference and the Federal Government in every way they can in promoting and strengthening the national defense of the United States, to the end of avoiding war and preserving our free American institutions.

"And be it further resolved, that copies of this resolution be delivered to the members of the Florida Delegation in the Congress of the United States, the Governor of the State of Florida, and the Chairman of the committee appointed at the recent Southern Governors' Conference to represent the South before the Federal Government and its agencies."

JULY NINETEEN FORTY

PLANT SITES in the Seaboard Southeast

In the six southeastern states served by the Seaboard Air Line Railway there are many excellent plant locations suitable for a wide variety of enterprises.

Assets of prime importance include an abundance of raw materials, cheap power, good labor conditions, excellent transportation facilities, quick access to markets, and last but not least, a friendly people who are sympathetic towards industry and its problems.

Detailed reports will be furnished on specific sites upon request. To interested prospects we offer all the benefits of an experienced plant location service without obligation or cost.

WARREN T. WHITE, GENERAL INDUSTRIAL AGENT
SEABOARD AIR LINE RAILWAY, NORFOLK, VA.

Industrial Department
SEABOARD
AIR LINE RAILWAY



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

The Southern Hotel
BALTIMORE



*Pensacola
Invites Industry*

Pensacola has what industry wants—good port facilities, marine terminals for the L & N R.R. and the Frisco Lines, nearby raw materials, good labor and living conditions, low costs of operation. Investigate Pensacola. For further information write
B. F. Langford, Sec. Mgr., Municipal Advertising Board—

PENSACOLA FLORIDA
on the Gulf



THE SOUTH

where **GREENER PASTURES**
yield **GREATER PROFITS**



THE Southern states offer outstanding opportunities for profitable dairy, livestock and truck farming.

A mild year-round climate permits early planting and affords a continuous grazing program, greatly reducing feed costs.

More than 30,000,000 acres of cut-over coastal plain lands obtainable at around \$10 an acre for inexpensive grazing of beef cattle on native reeds and grasses. Beef cattle have been produced on such pasturage for as low as approximately \$20 per yearling stocker per year.

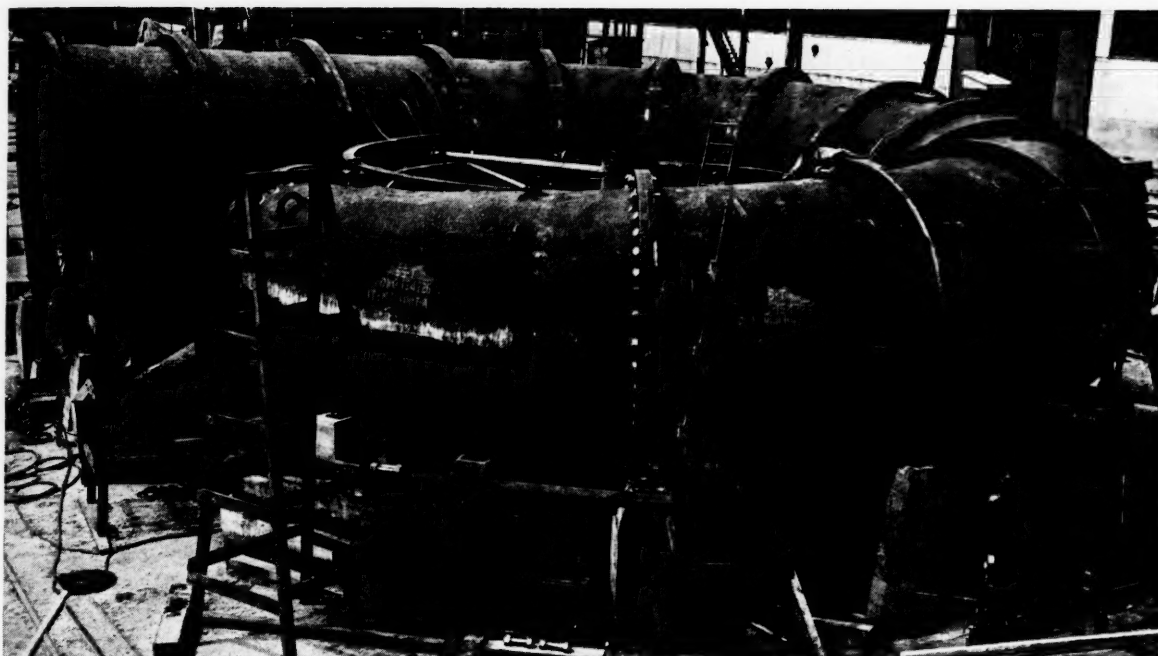
Abundant sandy loam land available in coastal plains, ideal for a year-round grazing program. On such lands feed costs have been held as low as 15 cents per pound of butter fat. A ready market for dairy products is found within the South, which consumes annually a billion gallons of milk in excess of what it produces. Climate admirable for truck farming. Richest consuming markets just overnight away.

Southern Governors' Conference

Bona Allen Building, Atlanta, Georgia

LAWRENCE WOOD ROBERT, JR., Executive Director

CARROLL DOWNES, Industrial Consultant



*Cast Steel Scroll Case for one of three
150,000 H.P. Grand Coulee Turbines.*

Builders of
HYDRAULIC TURBINES:

Francis

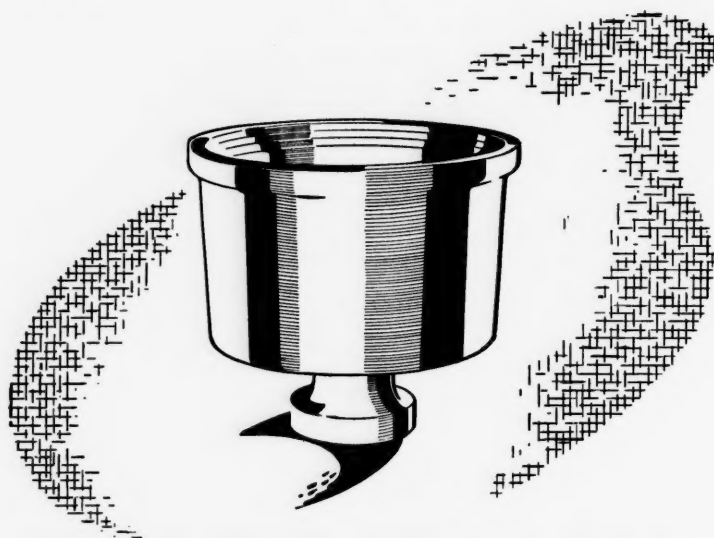
Propeller

(Fixed and Automatically
Adjustable Vanes)



**NEWPORT NEWS SHIPBUILDING
AND DRY DOCK COMPANY**

NEWPORT NEWS, VIRGINIA



YOU'LL GET A SOCK OUT OF THIS BUCKET

Specifically, this is where your rayon socks come from.

When they enter the bucket, they are merely untwisted, fine filaments of rayon. A motor drives the bucket at something like 9,000 rpm, and that spins the filaments into the yarn from which your socks, or whatever, are woven.

Nice problem in engineering, making such a bucket!

It must be big enough to hold an economical amount of yarn. Yet it must be light, so that yarn and bucket together won't be too heavy to drive. And it must be strong to withstand the tremendous bursting forces caused by high speed of rotation. Finally it must be accurately machined so that perfect balance is maintained at the high operating speeds.

The Solution: A forging of a strong Alloy of Alcoa Aluminum, which combines the fundamental requirements, namely, strength, lightness, and machinability.

The Result: A larger bucket than would be possible with other suitable materials, and therefore, lower costs.

The Moral: Wherever things move, or must be moved, it saves money to make them light with the strong Alloys of Alcoa Aluminum.

Our part is to make these strong alloys available in every needed form and variation, and to help you, conscientiously, to apply them to specific problems in the most economical way. It is always thrifty to use Alcoa Aluminum right. Aluminum Company of America, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA · ALUMINUM

Perm
only
attem
ment
prese
that
Fo
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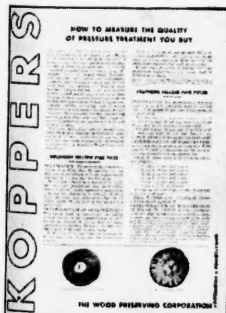
Insist on

**PRESSURE
PENETRATION
FOR
DEPENDABLE
PROTECTION**

Permanence can be added to all the other structural advantages of wood *only* by proper pressure treatment meeting specification standards. Countless attempts to use "short-cut" treatments have invariably ended in disappointment and loss. Use of timber with less than standard penetration of preservative brings a definite danger of early failure. Experience indicates that only pressure treatment can give adequate penetration.

For your own protection, specify *pressure treatment with recognized preservatives*, and insist on the *penetrations adopted as standard by the American Wood-Preservers Association*.

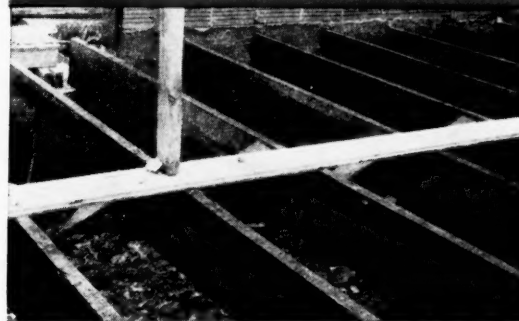
Send for the data sheet, "How to Measure the Quality of Pressure Treatment," which lists the minimum penetrations required for maximum economical service.



OTHER USES FOR PRESSURE-TREATED TIMBER: Ties . . . Guard Rail
Posts . . . Tanks, Sumps, Vats . . . Barges . . . Conduit . . . Cribbing . . .
Culverts . . . Poles, Posts, Fences . . . Piling

OTHER KOPPERS PRODUCTS: Roofing . . . Waterproofing . . . Bituminous
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Couplings . . . Plate Work . . . Castings . . . Valves . . . Tarmac Road Materials
. . . Coal . . . Coke . . . Disinfectants . . . Tar Acids . . . Light Oils

Ask for Literature on any of these Products



SAVINGS UP TO 25% in initial cost over other permanent types of construction frequently can be made by the use of pressure-treated timber in industrial buildings for sub-floor and foundation timber, floors, and roof decks. Structures can be easily and economically altered and piping, conduit, hoists, etc. easily installed or relocated at any time. Pressure treated timber resists decay, termites, exposure and other destructive attack.

THE KOPPER PRESERVING CORPORATION

PITTSBURGH, PA.

a **K O P P E R S** *subsidiary*

There's a place in every plant where AKLO FIGURED OR WIRE GLASS is needed



AKLO Hammered Glass is used in both the office and factory windows of the Druggist Cooperative Ice Cream Co., Inc., Atlanta, Ga.; Jiroud Jones & Co., General Contractor. In the office windows, only the upper half is glazed with AKLO, permitting an unobstructed view through the lower half. The factory windows are glazed throughout with AKLO.



HERE'S THE SIMPLE "BUCKET TEST"

Place two buckets filled with water of the same temperature in an exposed sunny spot. Cover one with a sheet of ordinary figured or wire glass, the other with a sheet of AKLO. After several hours, take the temperature of the water in both buckets. The water under the AKLO Glass will be considerably cooler because AKLO keeps out most of the sun's heat.

● The advantages of AKLO Industrial Glass are so inclusive, that there is hardly a plant that would not gain in efficiency through its use. In a food packing plant it may mean a reduction of spoilage from solar heat; in another, it might represent lower air-conditioning costs; where machine tool workers are concerned, AKLO reduces eyestrain and fatigue and as a consequence increases efficiency and production. All these are things that Blue Ridge AKLO Glass has done, is doing daily in plants all over the country.

Blue Ridge AKLO Glass is a blue-green, low expansion Figured or Wire Glass that absorbs practically all of the infra-red (heat) rays of the sun, substantially reduces glare, and at the same time admits adequate daylight—properly controlled.

While you eat lunch today, jot down on a slip of paper the places where AKLO Glass might save money and increase efficiency in your plant. Then call in your Local L-O-F Distributor and have him give you all the facts. You'll find those facts both illuminating and convincing. Blue Ridge Sales Division, Libbey-Owens-Ford Glass Company, Toledo, Ohio.

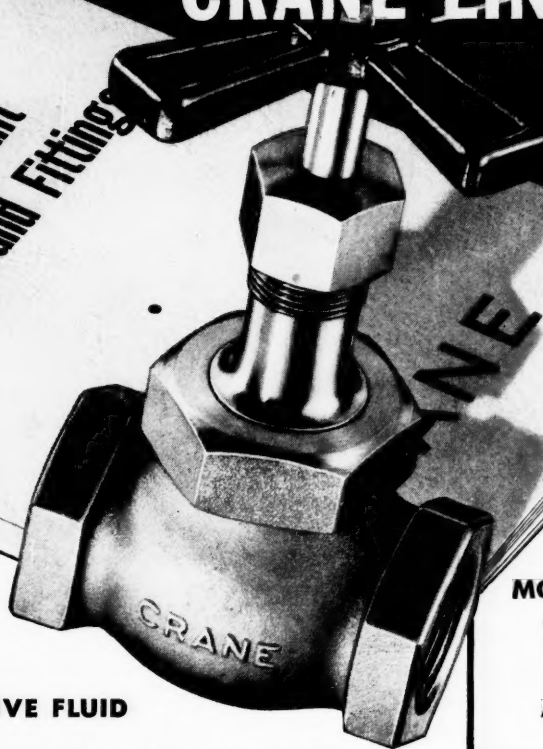


BLUE RIDGE AKLO GLASS

HEAT-ABSORBING, GLARE-REDUCING, THERMAL SHOCK-
RESISTING FIGURED AND WIRE GLASS

YOUR *SPECIAL SERVICE* VALVES ARE *REGULARS* IN THE CRANE LINE

Corrosion-Resistant
Valves and Fittings



THIS NEW CATALOG
HELPS YOU CHOOSE

✓ Dependable
✓ Low-Cost

PIPING FOR EVERY CORROSIVE FLUID

NICKEL
NI-RESIST
MONEL METAL
18-8 MO.
EVERDUR
ALL-IRON

NO LONGER need power and processing plants encountering corrosive and other reactive conditions in piping, search for special valves and fittings.

Now, a complete range of corrosion-resistant piping equipment is available from stock in the great Crane line. From a wide selection of alloys, you can choose with surety for every condition. There is a Crane material offering highest protective values against chemical impurities for each gas or liquid service.

Crane alloy equipment is not without experience in actual service. Heretofore available on special order only, it has for many years pleased the most exacting users in power and processing industries.

This new Crane line reflects a thorough knowledge of the efficiency of select alloys under varying working conditions. And combining Crane's ability in valve engineering and 85-year manufacturing experience, it assures you of complete satisfaction from every angle.

SEND FOR NEW CATALOG NO. 312

... and get acquainted with Crane Corrosion-Resistant Valves and Fittings. You'll find it a reliable piping "head-ache" remedy and a sound money-saving manual. You will find a lot of use for the authoritative colored "Stop & Go" chart which indicates the degree of suitability of each alloy for specific services. Your Crane Representative will gladly supply this catalog—free—or, you may use the coupon below to get one.

CRANE



CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO
VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

CRANE CO., 836 S. Michigan Ave., Chicago, Ill.

Please send me a copy of your Catalog No. 312. No obligation, of course.

MP-7-40

Name.....

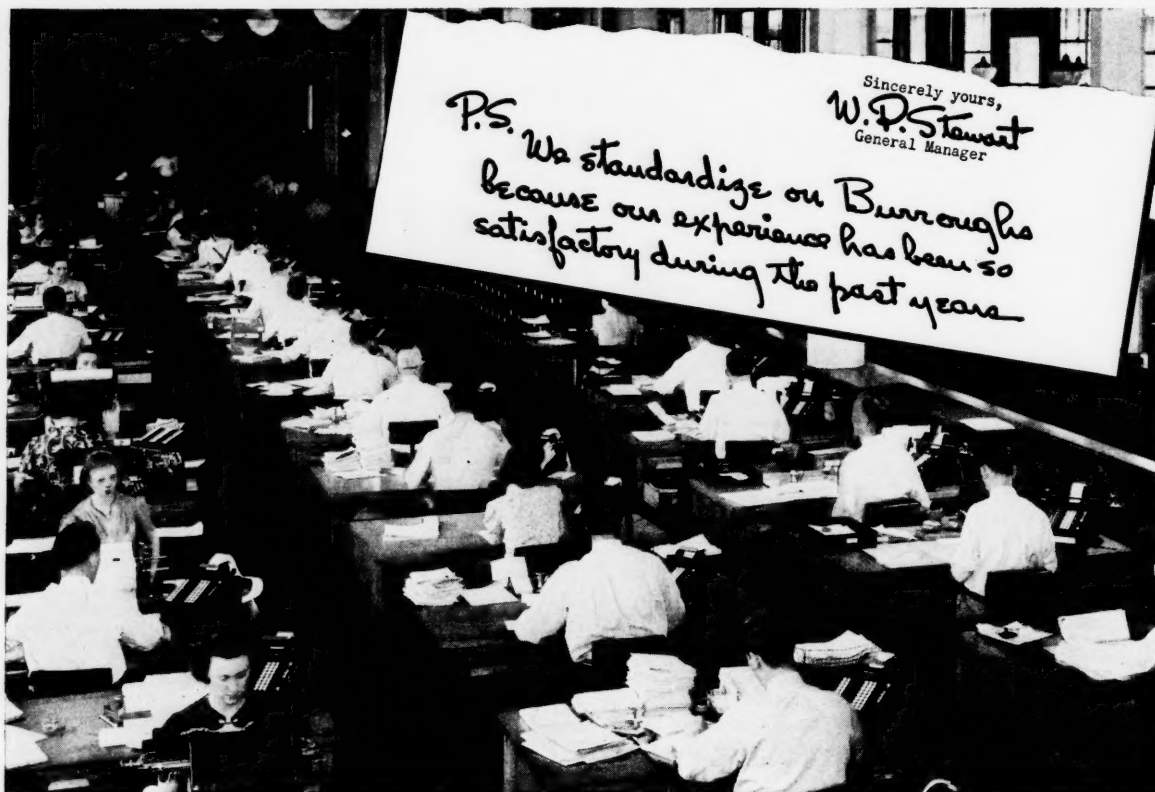
Company.....

Address.....

City.....State.....

NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALE IN ALL MARKETS

Only a P.S.



P.S. We standardize on Burroughs
because our experience has been so
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Sincerely yours,
W.P. Stewart
General Manager

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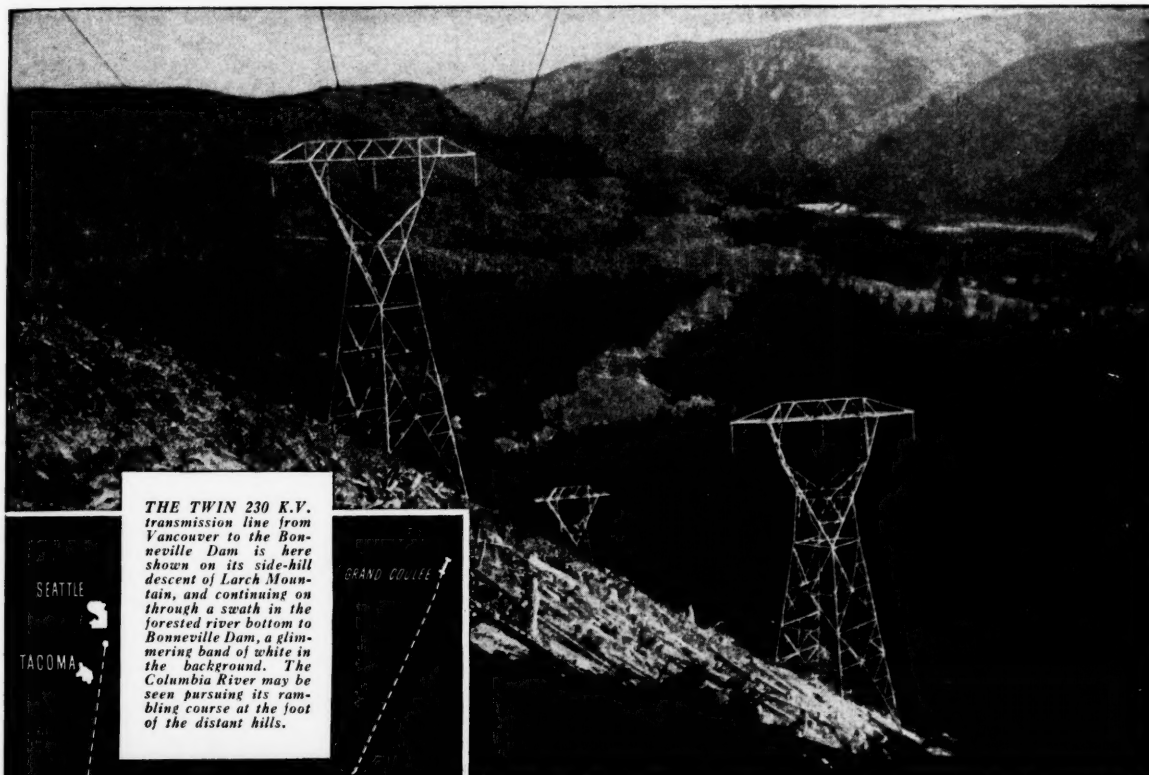
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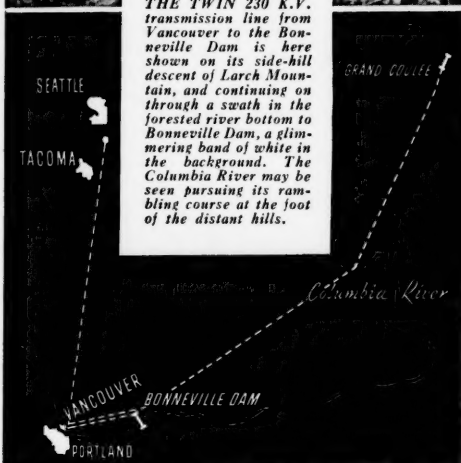
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450 MILES OF ROTATED TOWER LINE



THE TWIN 230 K.V. transmission line from Vancouver to the Bonneville Dam is here shown on its side-hill descent of Larch Mountain, and continuing on through a swath in the forested river bottom to Bonneville Dam, a glimmering band of white in the background. The Columbia River may be seen pursuing its rambling course at the foot of the distant hills.



**. . . WILL CARRY POWER FROM
GRAND COULEE AND BONNEVILLE**

TOWERS of the rotated type have a distinguished performance record in the carrying of heavy loads over rough terrain. The project above, now under construction, will prove no exception.

It loops the Cascade Mountain Range in the state of Washington—450 miles of rugged, virgin country from Grand Coulee to Bonneville,

thence to Vancouver, Tacoma and Seattle—a 230 K. V. transmission line for the distribution of power from two outstanding Columbia River projects, Grand Coulee and Bonneville dams. The more than 2200 rotated towers required for this line are under contract to American Bridge Company for the U. S. Department of the Interior, The Bonneville Project.

These towers are designed for extra heavy lines with especial consideration given to the character of widely variant and often hazardous topography. And, as usual in American Bridge practice, full size specimens have undergone the "acid test" in our Shiffler Plant test frame, where field loading conditions conforming to the specified design criteria were duplicated.

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UNITED STATES STEEL



Swaying southern pine to morning paper

The production of news-print from the lowly pine tree is one of the South's young and thriving industries that promises to become increasingly important.

Men of vision, seeking a new use for the fast growing crop of yellow pine, perfected this product and started another Southern industry on its way. Fifty thousand tons a year of high-grade newspaper stock are now produced in the first commercial plant at Lufkin, Texas. And more plants are planned in Tennessee, Georgia and Arkansas to increase the total production to a point of national importance. The development of this industry will keep men and machines busy, will increase the value of timberlands and will circulate more dollars in Dixie.

Steel will help in this development . . . steel grinding and paper-making machinery . . . modern steel frame factory buildings . . . galvanized-steel-roofed warehouses and storage sheds . . . reinforced concrete highways and swift rail transportation.

And Bethlehem is in a unique position to supply news-print producers and other progressive Southern industries with a complete range of the steel materials they need. Located at the doorway of the industrial South, Bethlehem's Maryland Plant, at Sparrows Point, near Baltimore is the country's only major steel producer on tidewater. Shipments can be made economically to any point in the South.

BETHLEHEM STEEL COMPANY





U. S. Flexible Joint Pipe and U. S. Mechanical Joint Pipe are widely used for submarine lines carrying water or gas, as well as for sewer crossings and outfalls—wherever ample deflection and effective resistance to corrosion are required. Stocks of pipe and standard fittings are available at 14 shipping points.

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cast iron
PIPE

Providing Truly Practical Drain Channels, plus Bronze
Stem-Thread Bushings Cast Right into the Bonnet . . .

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"KING-CLIP" GATE VALVES

ARE "CORRECTLY
ENGINEERED" FOR
MAXIMUM ECONO-
MY ON THE JOB!

Here is a Lunkenheimer product in which "engineered superiority" is discernible even before you take it apart. Aside from the obvious ruggedness of its well-proportioned iron body and the extra long pipe threads, which are provided to eliminate any danger of jamming pipe against seat rings, you will see evidence of the "King-Clip's"

larger, full-flowing drain channels which permit the escape of even heavily congealed fluids from the upper bonnet chamber when the valve is open.

This feature alone has much to do with the more dependable performance you can expect from this "King of the Clip Valves." But Lunkenheimer's distinctive stem-thread bushing design, also gives evidence of superior engineering.

To assure non-corrodible internal working parts, a non-ferrous alloy bearing is cast into the bonnet. This construction also makes possible the perfect alignment of bonnet and stem threads, ensuring easy operation, and eliminating a common cause of thread wear. The bearing is so positioned that all stem threads are in contact with it at all times, thus providing smooth, full-thread operation, both open and closed.

SEEING IS BELIEVING!

Why not let your eyes be the judge of Lunkenheimer's more certain ability to serve you better and at less cost? Our distributor's salesman will gladly demonstrate at your desk the features mentioned above, and describe the various other phases of design and construction that enable LUNKENHEIMER "KING-CLIP" VALVES to give you economical trouble-free service.

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Send for copy of our new Catalog No. 78. We will include our handy "Guide," which makes selection easy by grouping valves, boiler mountings and lubricating devices according to pressures, temperatures and service applications.

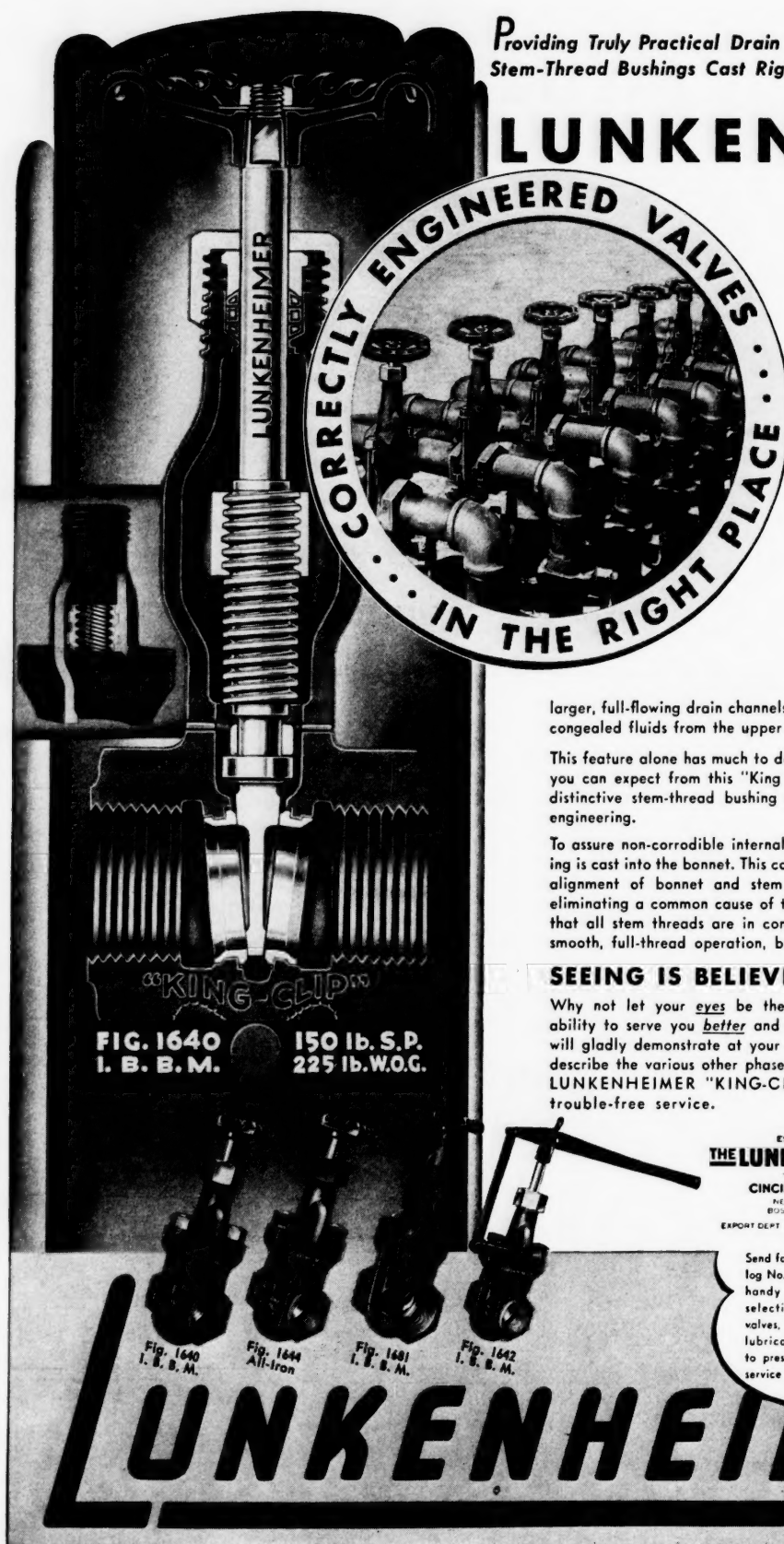


FIG. 1640 150 lb. S.P.
I. B. B. M. 225 lb. W.O.G.

Fig. 1640
I. B. B. M.

Fig. 1644
All-iron

Fig. 1641
I. B. B. M.

Fig. 1642
I. B. B. M.

LUNKENHEIMER



DEMOCRACY'S SUPREME TEST

All war is horrible in its wanton destruction of life, its heartaches, and its waste, but the awfulness of the catastrophe that has passed through Western Europe, and as this is written threatens the British Isles, is beyond human power to depict. The purpose, however, of the aggressors who have brought it about is as clear as crystal. That purpose is to crush democracy and the ideals men have groped for and found only after centuries of struggle. What has gone on already in the conflict will affect the lives of every human being in the world for years to come.

Let us harbor no delusions. America is a rich prize. Our wealth, our unmatched resources, our success, long have excited envy and it may be the time is not far away, whether we like the thought or not, when we may have Mr. Hitler as a neighbor in the land to the North of us, in South America and the islands adjacent to our coast. That depends at present upon the stand that Britain may make. If she succumbs or if her fleet is destroyed, America will remain the sole surviving nation in any way capable of offering resistance to a force that would make men slaves of autocracy.

What part we may have in the course of events is largely in our own hands, and the first step is preparing defenses that will make America invulnerable and with the least possible loss of time.

A peaceful nation hurried into a program of resistance to threatened aggression moves slowly at first, but a lot of the inertia and a lot of the red tape, and all of the politics, should be thrown in the discard in order that we may proceed expeditiously and efficiently for the accomplishment of the purpose that means the preservation of our liberty. That liberty we have accepted as a matter of course, as the air we breathe, but today it seems very precious. Our task is to preserve it, unterrified and unbeatable. It is ours to prove that Democracy is not only a faith, but a living principle, a reality that will continue to hold aloft the torch of liberty.

Thus will come about the welding, the unification in this country of diverse interests that at times have drawn away from one another for various insufficient reasons.

There have been attempts to build up class hatreds. Capital and labor have failed to recognize their interests as a common interest. We have permitted subversive influences to undermine the foundations of freedom.

As a paramount duty the work to be done is the rooting out of fifth columnists, but the bright side of the defense picture, in spite of sacrifice and tremendous cost, is what will result from the bringing together into a common purpose all interests of all classes and people of all conditions. It will make us a greater nation than we have ever been. We face a necessity, and a great opportunity.

The South's Part in National Defense

The people of the United States have entered wholeheartedly upon a program of defense. This country, no longer believing "it can't happen here" sees now in menacing form what may happen through lack of preparedness.

A meeting of 300 business men was held in Atlanta June 10 at the invitation of Governor Rivers of Georgia to consider how the South, with its wealth of raw materials, might best help in the situation confronting the nation. Financiers, industrialists and prominent citizens from every Southern state were present.

It was emphasized that the resources of the South should be used to the fullest extent in whatever form needed to make America ready for what may come. To accomplish promptly and effectively the purpose in view it was thought best to have a Southwide general committee with each Southern state represented by a member to be appointed by the respective state governors, and in this way coordinate the efforts of various local and state agencies already formed.

R. L. Gould, Treasurer of the MANUFACTURERS RECORD, was made Chairman of the general committee, and elsewhere in this issue where the proceedings of the meeting are treated more fully, names of the members appointed by Southern governors are listed.

Mr. Gould delivered the keynote address and on the suggestion of Mr. W. T. Anderson, editor of the *Macon Telegraph*, it was decided to send copies of the address to every civic organization throughout the South so that every business body might, through its membership, contribute to the success of the undertaking.

The South's natural resources, fortunately, are in close proximity one to another and in vast abundance. The aim will be to cooperate with the War Department with full information as to the availability of plant sites and the advantages of locations. As was stated in these columns recently, "In putting industrial America to work on a defense program, it is inevitable that the vast natural resources of the Southern states and their availability for War Department needs will have an essential place." The fact is that these resources form a large part of the nation's storehouse, and therefore will fill a major place in making defenses complete.

Already in this territory are located many of the country's largest enterprises—some of them being the largest plants of their kind in the world, and there are in abundance in this section most of the materials variously classified by the War Department as "critical, strategic and essential."

Munition and war material manufacturers will find here locations that are ideal from every stand-

point. Prominent airplane manufacturers who have found it necessary to enlarge their facilities are now considering the question of Southern plants.

The office of this publication as the recognized source of information about the South, was chosen as the clearing house through which to keep the committee informed of War Department needs and to provide data of Southern resources and industry's requirements. The MANUFACTURERS RECORD appreciates the honor and esteems the privilege of cooperating to the fullest extent in the vital work of the hour.

Cut Out Politics and Red Tape

The following expresses the view of a man who has had a not inconsiderable part in the industrial development of the South. He views the question of defense now confronting the country from a practical standpoint. Cut out the red tape and proceed without political interference promptly and efficiently to the accomplishment of the immediate purpose is what the country has a right to expect.

"You may recall a couple of years ago I mentioned to you that in our business we had made some money out of the PWA, WPA, etc., but I would be willing to forego any and all profits if the administration would cut it out, or omit everything but absolute essentials. I suggested that we could use the money to far greater advantage in national defense.

"However, I did not see the situation in as serious a light as it appears to be today.

"Put this preparedness in the hands of a War Board composed of business men and not politicians, and take it out of the hands of that otherwise very fine group of men, the Army and Navy.

"Stop all immigration of any nature whatsoever.

"Double or triple the size of the FBI and unrelentingly root out the so-called 'Fifth Column' or those engaged in any, even minor, subversive acts.

"Put in some form of compulsory military training, and even go to the point of training men of my age and older into at least home guards. It surely can do no harm—it might in years to come be of great value.

"As we should have done some several years ago, subsidize commercial aviation. We could not turn such planes into pursuit combat planes, but we could make bombers out of them.

"To put it briefly, get the politician out of the way so America can go to work; cut out the red tape; cut out all of these crop subsidies; help these emergency departments with capable, conscientious and forceful business men. Firmly and ruthlessly clear out all who do not believe America is the one and only place to live, and then start to build in the whole nation a sense of patriotism and devotion

to this country that has been sadly lacking for the last eight years.

"The world has seen Hitlers before, though a thousand or more years have passed since it has seen such ruthless disregard for life and liberty. To me, our own government is just as guilty of gross negligence as is Mr. Chamberlain. It is no time for irresponsible talk; it is no time to bewail our conditions. There is one thing to do—'about face'—and make it today, not tomorrow.

"There is no greater force in America than the editorial columns directed by men of your type. America must be waked up! Every ounce of pressure you gentlemen exert will help us reach that state more quickly. You can't say too much and can't, as I see it, say it too often."

Laws That Hinder The Defense Program

Laws enacted for political reasons and under pressure from selfish interests are bound to handicap private enterprise in its effort to meet government requirements. The present situation which needs a strong pull-together on the part of everybody, and can only be met by utilizing industry's facilities—and these must be enlarged—demands that measures which block effort should be withdrawn.

The Wagner bill should be immediately amended. It places strictures upon every employer and, as frequently stated in these columns, was not only unwise but an entirely unfair, one-sided piece of legislation.

That is but one example. The Walsh-Healey act and the Wage and Hour law are others with which producers have become familiar and learned to their cost. Even if these laws are not thrown out or amended in their entirety, their unfair provisions can at least be changed.

The so-called ideals of the New Deal were opposed to recovery from the start. They have been a block in the road to progress and failed of their own purpose because they were not practical.

The employers of America want to do their utmost. Their patriotism lacks not a whit of the fervor of that of every other citizen, and if ever calm judgment is to be exercised this is a good time to begin.

Congress remaining in session for what may turn up can do no better work than to undo some of the things it has done wrong in the past.

The Employing Printers' Association of America, Inc., says in its June Bulletin—"National defense must not be sabotaged by labor unions and leftist laws. Numerous industries will be called upon to gear up their operations to high levels of production in order to carry out their part of the national defense program, but no one is yet able to show how this can be done while they are still hobbled

and harassed with the Wagner act and the wage-hour act and crippled by pay-roll taxes."

Tennessee Gets Two Important Plants

We are publishing in this issue a description of the new million dollar plant just completed at Nashville, Tennessee, of the Aviation Manufacturing Corporation, builders of the Stinson airplane.

The plant was located in the Tennessee city because of the "unprecedented demand for both commercial and military aircraft" and "Nashville was selected because of its inland location, as well as many other factors favorable to aircraft manufacture."

Tennessee was chosen again in the location of the \$15,000,000 powder manufacturing plant to be built and operated near Memphis by the E. I. du Pont de Nemours & Co. for interests reputedly backed by the British government.

The South's Resources

"The South's Resources," to be issued by the MANUFACTURERS RECORD about September 1, will appear at an opportune time. Its factual information about Southern resources and opportunities for development will meet a demand from industrialists throughout the country.

We recall no issue in the past which has aroused greater interest. The reasons for this are emphasized in two important particulars. Industrial America, as shown by many letters that have reached this office in the past few months, sees in the South the most promising frontier existing anywhere in the United States, and when business gets the go-ahead signal the urge to have a part in the South's upbuilding will find expression in new plants.

Added to this is the present situation brought about by the defense program that demands the thought and energy of every citizen. The South is to have a considerable part in this program as we have described elsewhere.

In any discussion of business today it is inescapable that the war in Europe and its effect upon the United States must figure largely. All business plans and practically all thought about the ordinary affairs of life hinge upon adequate defense for this country and the preservation of American liberty.

It is timely, therefore, to take stock of our resources. "The South's Resources" will tell of the raw materials and developed wealth of a great area comprising one-third of the area of the United States, with one-third of its population. This one-third is almost wholly pure American stock.

SOUTHERN INDUSTRIAL MOBILIZATION

AT a meeting held in Atlanta on June 10, called by Governor Rivers of Georgia as Chairman of the Southern Governors' Conference, it was unanimously decided to organize a Southwide Committee to mobilize the South's industrial resources for defense.

In calling the meeting to order, Governor Rivers pointed out that it was not a meeting of the Conference itself, nor of the Southern Governors, but an industrial meeting conducted strictly as a business meeting to consider in round table discussion what leaders of the South might do in helping the Federal government carry out an adequate national defense program.

It was decided that a Southwide Committee should be composed of a Chairman and one representative from each Southern state, to be named by the respective governors, and certain members at large to be named by the Chairman representing basic industries, capital and labor. Each state representative would act as Chairman of a state-wide organization, representative of all industries and resources, to carry out the plans and purposes of the Southwide Committee.

At the date of going to press the membership of the Committee is as follows:

J. T. Anderson, North Carolina, Industrial Consultant, Dept. of Conservation & Development, Raleigh.

H. A. Berg, Alabama, President, Woodward Iron Company, Woodward, Alabama.

Charles A. Collier, Georgia, Vice President, Georgia Power Company, Atlanta.

George L. Googe, Committeeman-at-large, Southern Representative, American Federation of Labor, Atlanta.

J. G. Holtzclaw, Virginia, President, Virginia Electric & Power Company, Richmond.

William P. Jacobs, South Carolina, Clinton, South Carolina.

William R. McQuaid, Florida, President, Barnett National Bank, Jacksonville.

P. J. Pickens, Arkansas, 208 Louisiana Street, Little Rock.

H. A. Stansbury, West Virginia, President, State Chamber of Commerce, Charleston, W. Va.

W. O. Tatum, Mississippi, Tatum Lumber Company, Hattiesburg.

L. Kemper Williams, Louisiana, Vice

President, Williams, Inc., Chairman Housing Authority of New Orleans.

R. L. Gould, Chairman, Treasurer, Manufacturers Record Publishing Company, Baltimore, Maryland.

In opening the meeting, Governor Rivers said: "Our President and our Federal government have become thoroughly awakened and are in turn in proper manner seeking to meet the emergency. In seeking to meet this emergency they are calling for a national defense program that in turn calls for the mobilization and expansion of industries to furnish materials of war, and for the training of men.

"The time has come in this country, certainly, when all selfishness on the part of groups or individuals should be cast aside and there should be a united effort to support the national government in its effort for national defense.

"In calling for these expansions of industry, in calling for mobilization of men and materials, these expanded industries should be located where the national defense and the national good demands they be located. No community, state or section of this country, in this hour of peril and need, should want an industrial plant located in its community, or its state, or its section unless that is the very best place from the standpoint of national defense, or unless it is for the good of the whole country for that particular industry to be located there.

"We feel that a region which has the community of interest, that has the understanding of working organizations, can best present to the nation and to those in the government in charge of these expansions, facts that will give an unbiased, clear-cut understanding of what that region and its various sections offer, better by organization for that purpose than haphazardly.

"We think that to present, and make available to the Federal government facts, information and data without flag waving, without hysteria, without pressure, to say that here in the South we have these materials, we have this sort of manpower, we have this sort of labor, we have this sort of transportation, we have this sort of banking facilities, we have this sort of climate and all of the factors that the government would want to know and have accurate information

on before locating an industry, is the kind of work needed in the present emergency. An organization backed by the leaders of the South, in turn by the press and the radio, could give to the government facts, and with the spirit of patriotism to back it I believe it will be a substantial contribution to hasten the program of national defense being undertaken by our country.

"For instance, we have in Georgia 150 counties that would probably average at least three towns to the county that would be ambitious to secure industries, making a total of something like 500 communities in this state that would want to go to Washington for an audience with the War Department, or whoever was in charge of locating industries, and want as a result of these audiences to make a pull through their Congressman or Senator for industrial plant locations. When you multiply 500 by the 48 states you will flood Washington with more delegations than it is humanly possible for the officials in charge of the movement to interview in the space of a year's time, and the result is a confusion of data and information.

"I feel that we can organize a small committee, probably with a Chairman and a committee man from each state in the South as an overall steering committee and, in turn, let that state committeeman organize his state and assemble facts and information that the government will want, and that they will ask for, and present those facts and figures and information in coordinated and correlated manner. The result will be that we will get logically and systematically before the officials the information they need.

"Now that was the thought behind the calling of this meeting. It is not our thought to try to grab off industries. It is not our thought to try to bring pressure on government officials. It is not our thought to try to organize a stampeding campaign for any state, or community, or section of the country. I have asked to appear on this program, along this line of discussion, a man I felt was the logical man to appear on the program. Back in the days of Henry Grady there was a man's name mentioned often in connection with the work Grady was doing for the new South, Richard Ed-

monds of Virginia, who established three-quarters of a century ago the MANUFACTURERS RECORD, and for three-quarters of a century the MANUFACTURERS RECORD has devoted itself to expounding the virtues of industrial development of the South.

"Back in the days it was thought the South could be nothing more than an agricultural section of the country, the MANUFACTURERS RECORD took the position the South could be a great industrial section as well. For three-quarters of a century it has held high that torch. It has been indefatigable in its work and effort for Southern enterprise; has unstintingly given of its space to the Southern Governors' Conference in our efforts to help industrialize the South, and I feel that this publication, outstanding in this field and which has through 75 years been the Encyclopedia Britannica of Southern industry, has in its files more facts and information about the possibilities of the location of industry in the South than any agency I know of; that gets out every year a yearbook called 'The South in Facts and Figures,' (Blue Book of Southern Progress) and in that yearbook distributed to industry throughout the nation gives facts and information without argument; that every month gets out a publication known as the 'MANUFACTURERS RECORD' which gives out facts and information. For instance, in this one (June MANUFACTURERS RECORD) there is information about every state in the South—Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Alabama, Georgia, Tennessee, Texas, and Oklahoma, and there shows some of the outstanding resources of the South for the location of industry.

"I thought that that sort of man, who has furnished to the government over the years various maps and data that the government reads authentically I believe and relies upon about the South, I thought that sort of man would be an appropriate man to ask to come here and appear on the program in this movement or effort at organizing that we contemplate.

"Now Mr. Richard Edmonds, back in the days of Henry Grady, started the MANUFACTURERS RECORD. He died and passed on, and that publication is now in the hands of a Mr. Gould who is its president, and a Mr. Gould, a nephew, who is its treasurer, in direct line of succession during the entire 75-year period. Gentlemen, I want to present to you now Mr. Gould, the treasurer of the MANUFACTURERS RECORD who will talk to us about his views of the possibilities, and I hope make some suggestions as to the advisability and form of organization this meeting should take. I take pleasure in presenting to you Mr. Gould of the MANUFACTURERS RECORD."

BY MR. GOULD:

"Governor Rivers, Gentlemen: It is a privilege to take part in a meeting of this kind which reflects the finer type of patriotism, patriotism which is not expressed in hysteria but in sound, sane, constructive effort.

"The situation in Europe and the President's message to Congress, outlining the needs for an adequate national defense, place a great responsibility on American industry. That responsibility carries with it an opportunity for the South, such as has never before existed, to render the nation an outstanding service by increasing her own productive capacity and utilizing her natural advantages and limitless material resources. In this respect, the South can best serve the nation by serving herself, and at the same time, realize her own true destiny.

"That is the situation we face and the purpose of this meeting, as I understand it, is to determine in outline the best way for the South to take advantage of her opportunity.

"The South is the logical, natural, if you will, inevitable workshop of the country. It has the fundamental advantages for industry to a greater degree than are found anywhere else in the country, with greater supply and diversity of raw materials easily accessible; three-fifths of the nation's coast line, adequate transportation and power facilities, an equable climate, and intelligent labor drawn from a population which is more than 98 per cent American born. These advantages, which make for industrial growth, are given added emphasis by the forced expansion and relocation of industries necessary in preparing for the nation's adequate defense in the present emergency. By the same token, those defense activities must not be regarded solely in that light, but rather as an opportunity to establish for the South a permanent industrial economy—a net work of plants and industries making up an industrial empire greater than the world has ever known, bringing to the South a solution of its problems, and to the rest of the country a degree of prosperity following this present emergency never before experienced. I say these things advisedly and with due conservatism.

"Many people persist still in thinking of the South as an agricultural area. That is not true, for the value of the South's manufactured products is two and one-half times that of its agricultural products. The value of the South's manufactured goods, approximating \$11,500,000,000, is nearly 20 per cent of the total value of manufactured products of the entire United States. The South has nearly 25 per cent of the manufacturing establishments of the United States. For material, containers, fuel and purchased

power, the South in 1937 paid more than \$7,000,000,000 or more than 21 per cent of the amount spent for similar purposes by all the manufacturers of the country, the South included. In 1936 the South bought \$4,000,000,000 worth of new life insurance, as compared with \$11,000,000,000 for the rest of the country.

"Southern development has been a bright spot during the depression which has halted business and capital investment in the United States. Comparable figures for the South and the rest of the country show a proportionate growth here in basic lines of enterprise exceeding other areas. The dollar value of manufactured products in the South increased 35 per cent between the census years of 1935 and 1937. During the same period, the number of manufacturing establishments have increased by 803, as compared with a decline in the rest of the country of 3,120. The value of mineral production in the South is now nearly half that of the entire country and increased nearly 400 per cent from 1910 to 1936, compared with only 40 per cent for the rest of the country. For the development of the chemical industries, most important in any defense program, as well as any plan for permanent industrial growth, the South offers unequalled advantages. There are now in the Southern states nearly 1,700 establishments classed as chemical. These have an annual payroll of \$72,000,000 and the value of their output in 1937 reached a total of \$725,000,000.

"The South produces 70 per cent of the natural gas of the country; nearly 42 per cent of the lumber; 67 per cent of the crude petroleum; 47 per cent of the country's output of coal, excluding Pennsylvania anthracite; virtually all of the sulphur of the United States, the entire output of the country's bauxite, practically all of the carbon black from natural gas, practically all the phosphate rock; 85 per cent of the cotton used in all American mills is consumed in Southern textile mills. The South has more than 70 per cent of the rayon manufacturing capacity of the country, manufactures 25 per cent of the blasting powder and high explosives made in America, 70 per cent of the fertilizers produced in America, and in 1938, the total commerce passing through Southern ports for foreign trade totaled nearly 30 per cent of the value of exports of the entire United States.

"In the South are found many of the world's and country's largest manufacturing plants in widely diversified lines. For example, there is the world's largest axe plant, the world's largest cigar factory, the world's largest towel mill, the world's only plant for extracting bromine from sea water, the world's largest trunk factory, the world's largest drop forge and valve fitting plant, the world's largest

paper and bag plant, the largest single aircraft manufacturing unit in the United States, the largest cotton mill under one roof in the United States, the largest aluminum plate mill in the United States, one of the world's largest and best equipped shipbuilding plants—and the list goes on a great deal further.

"These things summarize very briefly some of the assets and developed facilities the South has to offer in building defense industries. It is inevitable that the vast natural resources of the Southern states and their availability for War Department needs will have an essential place in putting industrial America to work for our national defense.

"It is our problem here to see to it that the South gets its share of new plants and new industries, to see that its advantages are not overlooked in the cry for speed to meet an emergency. We must also see to it that this rapid expansion follows sound lines with an eye to the most effective, most economical utilization of our natural wealth. It is our job to see to it that essential manufacturing industries are located here when they belong here, and not elsewhere, and to assist them in every possible way without cut-throat competition among ourselves in getting the best possible location for their interests in the South. And there must be unity of thought and action, keeping this one fact prominently in mind—that what benefits the South benefits all of us alike and benefits the rest of the country—that what benefits Georgia benefits Mississippi—and what helps Savannah helps Birmingham. There can be no petty jealousies or political maneuvering for short-sighted apparent gain if a work of this kind is to be successful. It will only result in net loss for all of us and the country as well.

"New industries are continually knocking at our door. The trend toward location of plants in the South is already established and accepted. We only have to take advantage of that and help it by recognizing it, by rendering assistance in any way we can and by removing obstacles of our own making. Each state should examine its laws—and particularly its tax laws—to see that industry is not hampered or discouraged from coming here. That, too, is a matter of common interest, for if local conditions in any one part of the South are discouraging to the investment of new capital and the establishment of new enterprise, the economy of the entire South is affected. Frequently obstacles of this nature thoughtlessly placed for expediency offset our other outstanding advantages.

"There never has been a time when industrial leaders of the country have been more fully aware of the opportunities the South has to offer, or more actively interested in expanding in this direction. Industrial plant construction in the

South during the first five months of this year is 50 per cent ahead of the same period last year. Only last month a significant expansion of aircraft manufacturing was announced. In addition to the \$1,000,000 plant at Nashville, Tennessee, started some months ago, there are plans under way for new plants in Virginia, Florida, on the Gulf Coast and in Texas. A large aircraft engine and plane plant is projected for Newport News, Virginia, and Texas is being considered as the site for a similar large enterprise. We of the MANUFACTURERS RECORD have been very close to the War Department recently. They have come to us a number of times for information about what the South has, particularly in the way of minerals and undeveloped natural resources which can be used for munitions and arms manufacturing. It is definitely known that their plans for the national defense involve the productive capacity of everyone of the Southern states to a greater degree, perhaps, than any other part of the country. They are primarily interested in geography—an inland area is prerequisite; transportation, both land and water; proximity to raw materials; power, and availability of skilled labor.

"An analysis of these fundamentals will give anyone familiar with the South a summary of what many Southern and contiguous states have to offer as possibilities for expanding production in their territories. After surveying our natural resources, the Army and Navy Munitions Board has concluded that the necessary basic raw materials and some secondary products, which they have classified as Strategic and Critical and Essential, are present to a greater degree in the South, if available at all, than in any other part of the country.

From the facts presented, it must be clear that the South does have an opportunity—an opportunity to serve the country and at the same time win first place among the industrial centers of the world. The only question is whether we want this badly enough to work for it. Unselfish cooperative effort is needed, as well as tireless energy and the best brains of which the South is capable and above all, action—coordinated action of an intelligent sort.

"There are a great number of separate independent agencies in the South working toward the same end—the South's industrial development. Among these are included the industrial development departments of the states, railroads, public utilities, Chambers of Commerce and other comparable organizations. Unfortunately, however, through lack of coordination, their efforts are not nearly as effective as they might be. More than anything else is needed a focal point—a rallying point or a clearing house, so that the work of these agencies would each reinforce the others, so that the net effect

of their work would be cumulative. In other words, team work is needed rather than individual effort quickly spent in different directions. We need an even more complete link than exists at present between the South and her opportunities on one hand and industries located in other parts of the country, many of which should expand or relocate here. We need a more complete link between the South's undeveloped wealth and capital—between the manufacturer and Southern industrial markets, and we need aggressive action. As I see it, these needs offer our first problem. Upon its complete solution depends in large part the South's success in taking full advantage of this opportunity of serving the country in this emergency and in building for herself a place in this country's industrial economy second to none.

"We must not take for granted that other parts of the country are not doing something about the defense emergency. There are other inland and other intermountain areas, but they still don't have the advantages the South has. Whether we press those advantages for the attention of the right people, or whether we take it for granted that the right people will come to us and find out about them will determine to a large extent how successful we are in this competition. I prefer to look on this program of building up our national defense as an opportunity and as a challenge to the South's leadership. What are we going to do about it?"

Seaboard Airways

Recognizing the need of additional transportation to serve its territory (Virginia, North and South Carolina, Georgia, Alabama and Florida) jointly with its present connections, the Seaboard Railway has made application through its subsidiary, Seaboard Airways, Inc., to the Civil Aeronautic Authority for a certificate of convenience and necessity for the operation of an air transportation service between Boston, Miami and intermediate points, including New York, Philadelphia, Washington, D. C., Richmond, Va., Raleigh, N. C., Charleston, S. C.; Jacksonville, Tampa and West Palm Beach Florida. An additional route is provided between Richmond, Raleigh, Charlotte, Columbia and Savannah.

Seaboard Airways also desires to operate daily planes between Boston and New Orleans, La., and intermediate points such as Atlanta, Ga., and Birmingham, Ala.

The new airline contemplates the use of Douglas DC-3, and DC-4 transport planes, carrying 21 and 42 passengers respectively. For the route of the DC-4's, the approximate flying times would be 7 hours 50 minutes between Boston and Miami; 6 hours 35 minutes between New York and Miami; 8 hours 55 minutes between Boston and New Orleans and 7 hours 40 minutes between New York and New Orleans. The estimated capital required for operation, according to Seaboard Railway officials, is approximately \$4,500,000.

HIGHWAYS FOR NATIONAL DEFENSE

BY

John M. Carmody

Administrator, Federal Works Agency

MUCH progress has been made in recent years in strengthening our national defense by improving our highways. Further highway improvements will be undertaken so that if war is forced upon us our highways can facilitate the swift flow of mechanized forces and supplies.

It is fortunate that we already have a great highway system and that highway officials, for a number of years, have been quietly working with the War Department planning to meet the very conditions that now confront us. We already have a considerable degree of highway preparedness and the planning for what remains to be done gives assurance that there will be no hasty, ill-advised program. Since 1921 the strategic highway needs of the nation have been the subject of continuous co-operative study by the War Department and the Public Roads Administration, formerly the Bureau of Public Roads of the Department of Agriculture.

In 1922 the War Department made available to highway officials what is called the "Pershing Map" showing for the entire United States all highways then considered to be of special strategic importance with indication of the desired priority of improvement. For obvious reasons there was no announcement of this step and the map has been carefully guarded. This map and its 1935 revision has been a guide to the Public Roads Administration in all of its work. Copies were supplied to each of its district engineers and to the head of each State highway department. It has been consulted in studying all proposed additions to the Federal-aid highway system and in the review and approval of detailed plans for Federal-aid roads submitted by State highway departments. The desire of the War Department that the important highways of the country be conditioned to carry the loads imposed on them in case of war, has led the Public Roads Administration to insist on standards of design and construction consistent with this use. There has been some opposition to these standards as being unduly exacting, but to them is due the large measure of highway service our system is already conditioned to give.

The road building of the past 25 years

has been on a constantly expanding scale both in size of program and character of improvements. Practices in the location and design of highways have constantly changed to keep up with the growing volume, speed and weight of vehicles. The main highways built today differ from those of 1920 as much as the 1940 automobile differs from the 1920 model. All of the 1920 models have long since gone to the junk pile but many of the roads and bridges built to accommodate the traffic of 1920 and years immediately following are still in use. When these roads were built no one foresaw the need for highways to serve a great volume of swiftly moving traffic and had the need been foreseen there was no money to build the kind of highways we build today.

In recent years the Federal-aid and emergency highway program of the Public Roads Administration has been directed particularly at modernizing the main routes. Old roads have been straightened, widened, grades reduced, grade crossings eliminated and obsolete structures replaced. But by no means has all of this kind of needed work been done. The number of old bridges now carrying loads considerably in excess of their capacity is an important item in work to be done if our highway transportation system is to function as smoothly as that of Germany.

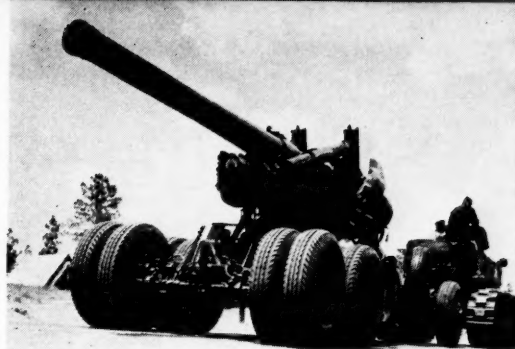
The extent to which there are weak links in our chain of highways, where they are, and what needs to be done about them, is not a matter of speculation. About 5 years ago the Public Roads Administration obtained the help of the State highway departments in making State-wide highway planning surveys. These surveys have yielded detailed information on the condition of all routes and the traffic they carry.

In 1939 it became possible for the first time to study the adequacy of our highways to meet the needs of modern warfare with detailed information on highway conditions at hand. For this job a joint committee representing the War Department, the Public Roads Administration and the American Association of State Highway Officials was created. It was desired to designate those highways

(Continued on page 56)

Illustrating the type of equipment our roads will have to withstand are, top to bottom, a 155 m.m. gun of the 36th Field Artillery; medium tanks, 67th Infantry; combat cars and 75 m.m. howitzer; and anti-aircraft guns. At bottom is a modern 4-lane divided highway suitable for defense purposes which replaced an obsolete section of the Baltimore-Philadelphia road.

(Four top photos by Signal Corps, U. S. Army)



MORE OPPORTUNITIES FOR AMERICAN PRODUCERS

AS the war abroad continues, North and South America are quickly being forced into the position of dealing more and more with one another in the effort to make up for the loss of their European trade. During the past few months two major events have taken place; one, the entry of Italy into the war and, second, the overthrow of France. The former not only removes Italy from international trade, but cuts off the other Mediterranean nations and almost isolates Europe from the rest of the world. The effect of this upon both North and South America in particular is apparent from the following summary of the situation.

In 1938, the latest year for which statistics are available, Italy's total foreign trade amounted to \$585,450,000 of imports, and \$546,251,000 of exports. Deducting the amount bought and sold to Italian colonies and Germany, the remainder of \$300,000,000 of imports and \$200,000,000 of exports represents trade with countries now at war with Italy, or so situated as to make commerce practically impossible.

There follows a summary of Italian exports to Central and South America, which apparently offer opportunities for expansion of American commerce.

ITALY'S EXPORTS TO ARGENTINA

Following are the chief items:

Citrus fruits	\$132,000
Dried fruits & nuts	430,000
Tobacco & products	288,000
Textiles & manufactures	12,057,000
Iron & steel sheets & manufactures	582,000
Machinery & apparatus	778,000
Automotive vehicles & parts	1,130,000
Marble & alabaster	533,000
Wood & manufactures	211,000
Oils & essences	1,772,000
Chemicals & pharmaceuticals	250,000
Paper & manufactures	228,000
Electric wire & cable	792,000
Miscellaneous	497,000

ITALY'S EXPORTS TO BRAZIL

Following are the chief items:

Textiles & manufactures	\$1,228,000
Iron & steel sheets	216,000
Machinery & apparatus	711,000
Arms & ammunition	219,000
Automotive vehicles & parts	185,000
Locomotives & rail vehicles	219,000
Marble & alabaster	142,000
Nonmetallic minerals	109,000
Sulphur & sulphur flowers	141,000
Chemicals & pharmaceuticals	415,000

The consequences of the European war on South American countries are serious. And the important markets of Italy and France, the subject of this article, being shut off makes the matter not only important to South America, but also to this country, at least to the extent we can fill the gap.

South American nations are primarily producers of raw materials, mineral and agricultural. Many of the latter compete directly now with the United States, but France and Italy have been taking a lot of these materials in which they are deficient and in turn supplying manufactured and semi-manufactured goods at a price that American producers may find it difficult to compete with.

Shutting off the trade with Italy and France and other countries has caused almost a complete stoppage of South American exports, and exports are especially vital to South America. Likewise, it is not altogether of academic interest to ask how these European countries can exist without the fundamental raw materials they have been getting from South America.

To what extent the United States can supply what is needed will engage the attention of our producers. Ed.

Wines & vermouth	219,000
Olive oil, edible	258,000
Miscellaneous	469,000

ITALY'S EXPORTS TO CHILE

Following are the chief items:

Textiles & manufactures	\$2,277,000
Machinery & apparatus	133,000
Automotive vehicles & airplanes	1,069,000
Miscellaneous	141,000

ITALY'S EXPORTS TO COLOMBIA

Following are the chief items:

Textiles & manufactures	\$260,000
Felts for hats	189,000
Hats & caps	192,000
Machinery & apparatus	51,000
Miscellaneous	55,000

ITALY'S EXPORTS TO URUGUAY

Following are the chief items:

Textiles & manufactures	\$1,640,000
Electric machinery & apparatus	60,000
Airplanes	190,000
Sulphur	45,000
Salt	29,000
Olive oil, edible	387,000
Miscellaneous	124,000

OTHER COUNTRIES

Among the remaining countries Bolivia imported Italian goods totaling \$80,000, consisting principally of miscellaneous textiles and hats and caps.

Costa Rica's imports were valued at \$247,000 most of them cotton textiles (\$33,000), and hats and caps (\$67,000).

Guatemala's imports totaled \$271,000 and also consisted mainly of textiles with cotton goods predominating in the amount of \$147,000.

Honduran, Nicaraguan, Dominican Republic and Haitian imports of Italian goods, \$79,000, \$76,000, \$60,000 and \$83,000 respectively, were of a miscellaneous character with textiles and headgear in the forefront. The same was true of Cuba, Paraguay, Panama, Salvador, and Ecuador to which countries were shipped goods valued at \$548,000, \$108,000, \$148,000, \$267,000 and \$393,000. In the case of Ecuador crude rayon with rayon textiles and manufactures amounted to \$166,000.

While Mexico imported Italian goods valued at \$1,720,000, \$1,095,000 of it was for silk, rayon and artificial fibres, textiles and manufactures. The balance was fairly evenly distributed among a variety of miscellaneous products.

Peru's Italian imports amounting to \$1,630,000 included: cotton textiles and manufactures, \$159,000; wool textiles and manufactures, \$29,000; rayon fibres, textiles and manufactures, \$207,000; machinery and apparatus, \$104,000; airplanes and airplane parts, \$557,000; insulated electric cable, \$107,000; and miscellaneous products, \$240,000.

Italian goods entering Venezuela in the amount of \$1,769,000 were likewise characterized by a predominance of textile goods with cotton textiles and manufactures (\$327,000), wool textiles and manufactures (\$261,000), rayon fibers, textiles and manufactures (\$145,000), and hats and caps (\$330,000). Miscellaneous products comprised the remainder.

United States trade with Italy in 1939 was \$58,863,556 and \$39,921,132, the balance being in favor of this country.

FRANCE

The withdrawal of continental France from participation in world commerce involves an annual trade value in excess of \$2,500,000,000 of which the United States share in 1939 amounted to \$244,199,449 — \$181,824,708 for exports to France and \$62,374,741 for imports.

Of course, the present war has already had a disrupting effect on the trade of France but in spite of that fact trade has continued with comparatively little change as far as France and South

America are concerned. However, the curtailment of French exports to our southern neighbors involving more than \$50,000,000 worth of French goods will leave a market unsupplied. A large part of this trade can be filled by American producers, for the following summary of United States principal commodity exports to France forms the basis upon which a large part of French manufactured exports to South America are made. The figures quoted are for 1937.

PRINCIPAL UNITED STATES EXPORTS TO FRANCE

Grain & flour	13,416 tons	\$839,000
Fruits & nuts	123,402,000 lb.	7,451,000
Tobacco leaf & manufactures	21,241,000 lb.	3,270,000
Hides, skins & furs	1,195,000 lb.	1,846,000
Leather	1,425,000 lb.	785,000
Furs, dressed, made up	453,000 lb.	1,135,000
Cotton, raw & waste	367,763,000 lb.	45,045,000
Wood	36,511 tons	2,200,000
Chemical wood pulp	9,563 tons	913,000
Rubber manufactures	1,578,000 lb.	664,000
Mineral oils	1,640,000 tons	35,684,000
Sulphur	86,340 tons	2,024,000
Ores	2,573 tons	1,457,000
Iron & steel	14,420 tons	1,429,000
Copper	64,840,000 lb.	8,249,000
Metal manufactures	4,772 tons	2,798,000
Machinery	16,218 tons	18,559,000
Automobiles & parts		5,638,000
Coal tar distillates	58,197 tons	1,652,000
Chemicals	29,449 tons	2,749,000
Paints & dyes	35,271,000 lb.	2,189,000
Motion picture films	52,498,000 ft.	1,092,000

FRENCH EXPORTS TO ARGENTINA

Following are the chief items:

Iron & steel including pig iron	\$4,648,000
Chemical products	1,678,000
Pottery, paving tiles, etc. ..	101,000
Earthenware & porcelain ..	171,000
Glass & glassware	203,000
Textiles & manufactures ..	4,013,000
Paper & books	433,000
Hides, skins, leather & manufactures	148,000
Jewelry	135,000
Machinery, machine parts & boilers	961,000
Metal manufactures	1,330,000
Wood manufactures	240,000
Vehicles & parts	1,166,000
Wines & liquors	424,000
Oils & essences	1,173,000
Seeds for sowing	125,000
Fruits, fresh & dried	196,000
Dried legumes & their flours ..	213,000
Combed & carded hair	143,000
Miscellaneous	1,013,000

FRENCH EXPORTS TO BRAZIL

Following are the chief items:

Aluminum ingots	\$ 259,000
Iron & steel	356,000
Chemical products	2,610,000
Textiles & manufactures ..	857,000
Paper & books	273,000
Hides, skins & leather	108,000
Machinery, machine parts & boilers	818,000
Metal manufactures	440,000
Automobiles & parts	201,000
Volatile oils & essences	277,000
Combed & carded hair	196,000
Miscellaneous goods	1,212,000

FRENCH EXPORTS TO MEXICO

Following are the chief items:

Wool, wool waste & textiles ..	\$ 834,000
Wines & liquors	582,000
Medicines	1,053,000
Textiles & manufactures ..	620,000
Machinery & machine parts ..	111,000
Metal manufactures	164,000
Olive oil	97,000
Chemical products	737,000
Miscellaneous	535,000

Aluminum & copper	97,000
Machinery & machine parts ..	157,000
Metal manufactures	101,000
Textiles & manufactures	438,000
Medicines, chemicals, perfumes & soap	181,000
Paper	88,000
Miscellaneous	226,000

FRENCH EXPORTS TO CHILE

Following are the chief items:

Iron & steel	\$271,000
Chemical & medicinal products ..	174,000
Textiles & manufactures	473,000
Machinery & metal manufactures	134,000
Olive oil	95,000
Miscellaneous	531,000

OTHER COUNTRIES

Thirteen other countries imported French goods in 1937 together totaling more than \$4,000,000. The principal items involved were essentially the same as those imported by the other South American countries detailed above. The thirteen countries with the value of their respective imports were:

Peru	\$1,341,000
Panama & British Honduras ..	626,000
Ecuador	421,000
Bolivia	295,000
Dominican Republic	256,000
Guatemala	234,000
El Salvador	228,000
Haiti	227,000
Costa Rica	134,000
Nicaragua	110,000
Honduras	89,000
Paraguay	54,000

SUMMARY

While the figures quoted above are substantial they are not especially large by themselves. Their significance, however, is infinitely greater when added to the import and export figures of the Axis partners and the countries the latter have invaded or absorbed. Altogether, the value of goods annually exported by Germany, Austria, Czechoslovakia, Denmark, Norway, Belgium and Luxemburg, Holland, France (excluding colonies), Italy and Poland to the Latin American countries approximates more than \$500,000,000 or almost as much as the entire foreign trade of the largest South American nation, Brazil. The same European countries also have curtailed United States imports by more than \$220,000,000 based on 1939 figures.

On the other side of the ledger, United States exports to these European countries in 1939 exceeded \$370,000,000 while the Latin American countries' exports totaled about \$700,000,000 in 1937. Such sums represent large markets and a challenge to American ingenuity. Will the challenge be met and the market retained?

FRENCH EXPORTS TO VENEZUELA

Following are the chief items:

Medicines	\$781,000
Wines & liquors	480,000
Metal manufactures	307,000
Iron & steel	115,000
Perfumes & soaps	151,000
Machinery & machine parts ..	118,000
Cotton, silk & rayon textiles ..	73,000
Miscellaneous	364,000

FRENCH EXPORTS TO CUBA

Following are the chief items:

Volatile oils & essences	\$ 94,000
Wines & liqueurs	92,000
Chemical products	1,218,000
Glassware & crystal	63,000
Textiles & manufactures	300,000
Paper	75,000
Metal manufactures	83,000
Miscellaneous	248,000

FRENCH EXPORTS TO COLOMBIA

Following are the chief items:

Textiles & manufactures	\$625,000
Machinery & machine parts ..	134,000
Wines & liquors	216,000
Medicines	732,000
Chemical products, perfumes & soaps	105,000
Iron, steel & metal manufactures ..	83,000
Miscellaneous	519,000

FRENCH EXPORTS TO URUGUAY

Following are the chief items:

Iron, steel & pig iron	\$334,000
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PASSENGER-CARGO SHIPS FOR THE SOUTH

WHEN the S. S. Deltargentino slides down the ways this month at Sparrows Point, Maryland, the last of the first three ships being built by the Bethlehem Steel Company for the Mississippi Shipping Company will have been launched. The Belbrasil, which was launched in December 1939, is now on her maiden voyage while the Delorleans is in the fitting-out basin and will be finished at an early date. These ships, built in a southern shipyard with southern labor for a southern shipping company and to operate out of southern ports, are combined passenger-cargo vessels embodying maximum comfort, convenience and safety for passengers and crew in conformation with the Bureau of Marine Inspection and Navigation regulations.

Each of these vessels has three complete decks, the shelter deck, which is the bulkhead deck, the main deck and the 'tween deck. The shell and superstructure of the vessel are of riveted construction, but welding was used throughout in the fabrication of decks and bulkheads and for the attachment of all fittings.

The ship has six holds, three forward of the deckhouse and three aft. Of these, all but one are covered by Tutin hatch covers, an English patent which has but recently been employed in this country. These hatch covers are worked entirely by two men, and not only speed up loading and unloading, but require no power for their operation. Number 4 hold is mechanically ventilated with two compartments totalling 10,000 cu. ft. of refrigerated space.

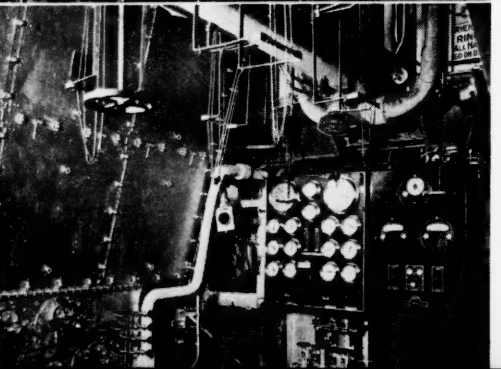
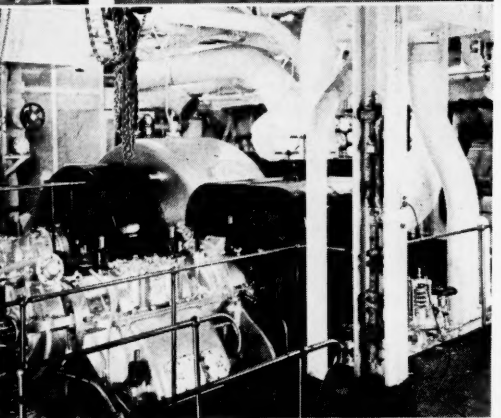
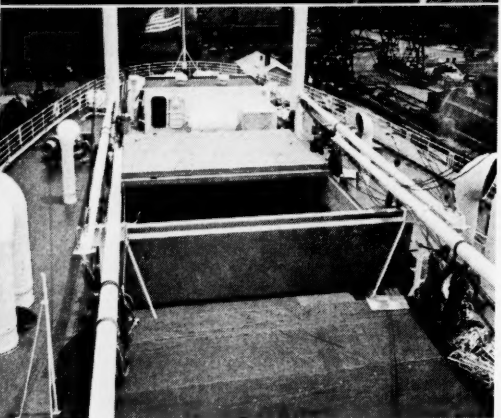
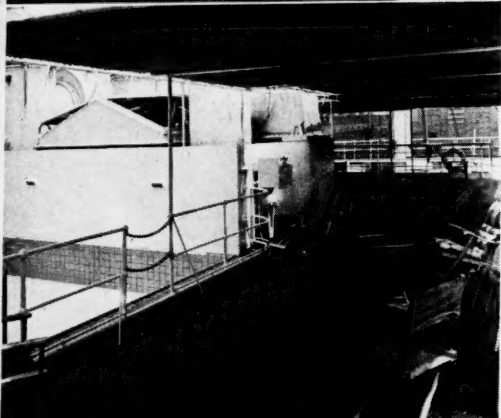
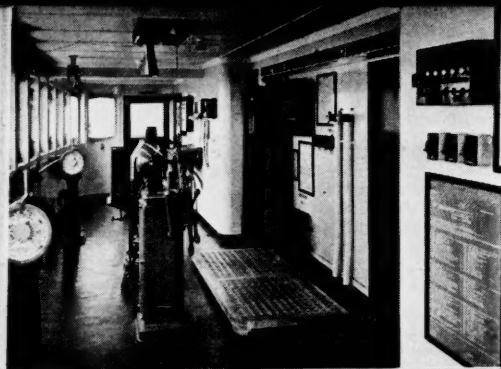
Each ship carries 67 passengers, with accommodations and public spaces comparable to those of the best type of ocean liner. The passenger entrance hall, two decks high, is decorated with murals by

Carroll Bill, F. Vining Smith, and Paul Arndt who also did the murals and bas reliefs for other public rooms. The dining saloon is completely air-conditioned by Carrier and is so constructed that a portion of it can be entirely partitioned off to provide a private dining room. Immediately aft are the pantries and kitchens, with 2900 cu. ft. of refrigerated space for storing food.

State rooms are arranged for single, double, or triple occupancy, and in several instances may be converted into suites. The joiner work in these state-rooms, as in all the public rooms, was done by Hopeman Brothers, with materials, including mahogany and formica panels, supplied largely by Johns-Manville and Formica Insulation Company. Although these materials are non-inflammable, as is true of almost all materials throughout each ship, they cannot easily be distinguished from the conventional ply-wood paneling previously used. The bedding is by Simmons, the lighting fixtures by the Dayton Manufacturing Company and the Sterling Bronze Company. The portable furniture by Irving and Casson and W. J. Sloane, wherever possible has been constructed of aluminum, and is the result of long experimentation with fire prevention and careful study by the manufacturers in cooperation with V. M. Friede, naval architect for the ships. The 26 private staterooms, captain's, chief engineer's and doctor's rooms each have their own bath. Plumbing fixtures, trim, and accessories by Crane Company were selected for their excellence and unique qualifications. While private staterooms are equipped with showers, not tubs, public baths are located on each side of the vessel adjacent to the staterooms.

At the after end of the bridge deck house is the veranda cafe, bar, and smoking room with access to the promenade and play deck which surrounds the house. The forward end is enclosed with Kearfott windows similar to those on the bridge, staterooms and officers' quarters. On the boat deck, in addition to the wheelhouse, the chartroom, and the deck

Top to bottom—The bridge complete with latest control methods of safe navigation; the swimming pool on the after end of the boat deck; looking aft from the bridge (note the Tutin hatch covers); views of the engine room showing turbines and boilers



officers' quarters, is the swimming pool, made from Byers' wrought iron with tiled edges and sides.

Of various safety appliances aboard these three vessels, mention has already been made of the fireproof partitions and furniture in the living quarters. Two fire-resisting A-1 bulkheads, fitted with automatic self-closing fire doors, divide the living accommodation spaces into three zones. For purposes of detection, the ship is provided with the Lux-Rich smoke-detecting system manufactured by Walter H. Kidde Co., with an audible alarm in the wheelhouse and engine room, and a thermostatic fire-detecting system, installed by the Bendix Aviation Corp., is located in public spaces where required. A complete CO-2 smothering (RichaudLo) system is provided for the cargo compartments as well as the boiler room, and an emergency steam connection is fitted to enable steam smothering in extreme emergency. There is a total of 82 fifty-pound capacity cylinders of Lux gas installed for the protection of all compartments. The fire control station from which all fire fighting equipment is coordinated is located in the wheelhouse, where regulation of all mechanical ventilation can be handled in case of fire. Self-contained oxygen breathing units by the Mine Safety Appliance Co., enable the engine crew to remain at their stations and the deck crew to reach the fire. The fire-hose reels, made exclusively of steel and malleable iron, by Wirt and Knox Manufacturing Co., store the hose efficiently, yet render it immediately accessible in case of emergency. The hose, manufactured by the Goodyear Tire & Rubber Co., includes 750 feet of 2½-inch single jacket fire hose coupled in 50-foot lengths and 1725 feet of 1½-inch water hose coupled in 75-foot lengths particularly adapted for rough service on shipboard.

The Welin Boat and Davit Corp., supplied the lifeboats and their accompanying equipment. On each vessel are four lifeboats, three of them 46 person capacity, and the other, a radio-equipped Gray Diesel driven motor boat, holds 26 people. Also supplied by the same corporation are four crescent davits, and two double-headed winches for each vessel, the latter equipped with 7½ h. p. General Electric motors.

Under the classification of safety appliances, the emergency diesel generator set supplied by the National Supply Co., is important. This set, together with its fuel supply, is compactly installed in the dummy funnel, the highest point in the ship, which permits its operation when all other sources of power aboard the ship are submerged and rendered useless. It provides an independent, self-contained source of electric power for operating lights, vital motors, radio equipment, and other safety devices.

Top to bottom—The 2-deck high entrance hall with murals above the mirrors; a cross view of the lounge work has relief over the fire place; one of the 3-person cabins fitted with two beds and one pullman berth, and equipped with every device for comfort and convenience which modern industry can supply; at bottom is the gyro room.

The five watertight doors installed on each ship are actuated by an elaborate control system, furnished by Cutler-Hammer, Inc., including a central control station, five waterproof motor drive units for mounting on the doors themselves, bulkhead indicator lights, a timing panel, and howler signals when the doors are in operation. The important feature of this control system is that by the use of a new type of declutching solenoids, the doors may be operated either locally or from the central control system, and are virtually foolproof.

Adequate ventilation has been assured by oscillating Emerson Electric fans in staterooms and public spaces, Anemostats, air distributing systems installed by the Anemostat Corp., and Kearfott type windows. These Anemostats differ from most air distributing systems in that they create many small air currents, traveling in different directions. In some cases, as in staterooms, they are combined with the overhead lighting installation.

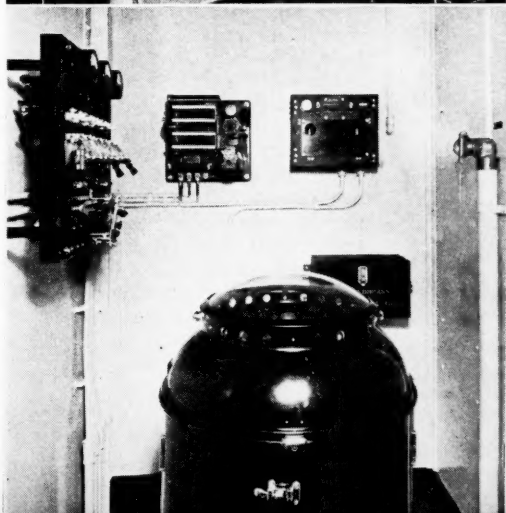
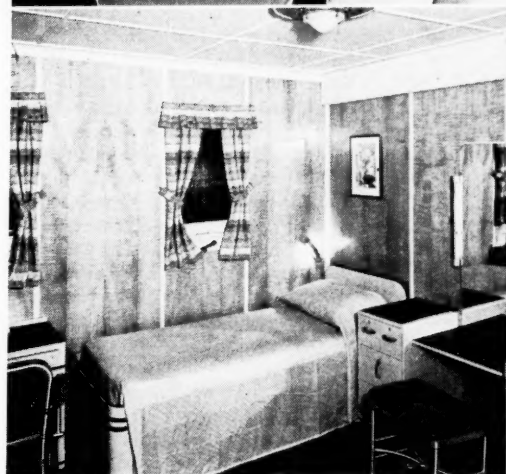
The galley and service pantry are laid out to provide the most efficient service possible for passengers and crew. The galley equipment, supplied by Edison Electric Appliance Co., includes two ranges of four hot plates each, backshelves with broilers and a bake oven. This equipment is all from Edison's Hot-point line. All trim, sinks and dressers are of Monel metal. The steam tables and aluminum cooking utensils were furnished by F. A. Davis and Sons.

The linen, purchased through the Moreland Textile Co., comprised one of the largest such orders ever given to one American firm and included table-cloths made by Rosemary Manufacturing Co., towels and sheets by Cannon Mills, and blankets by St. Mary's Woolen Mills. The machinery for laundering this linen was made by the American Laundry Machine Co. There are two laundries on board, one for the passengers, located on the main deck, amidships, and the other, aft, for the crew.

Other space allocated amidships provides for a well equipped barber shop and beauty parlor while further aft is installed the hospital with separate bath room and isolation ward. The equipment is provided with full sterilizing and operating outfit. A six bed crew hospital is located aft.

The crew, with the exception of the deck officers, is quartered on the main

(Continued on page 54)



FOREIGN NATIONS' INSUFFICIENCY

*The things Germany
and Italy need empha-
size the wide trade
adjustments to follow
the war*

THE war has stopped the oversea commerce of many nations. Most of these nations are not self-sustaining. Their imports and exports are vital to their existence.

Elsewhere in this issue is an article discussing the exports of Central and South American countries to Italy and France, now stopped by the war. This export trade of these South American countries is necessary to them, and likewise the raw materials supplied from this source are essential to the European countries which now must do without them.

The seriousness of the whole world trade problem now and following the war, and what part the United States will have in readjustment, will require for its answer the best thought and study of the best minds we have.

It is also of interest to compare the Italian situation under present conditions with that of Germany. They are both engaged in an exhausting war while outside supplies so necessary to their existence are being shut off.

In both countries the national economies are subordinated to political objectives; both have reached a state of practically full employment of labor and production facilities, particularly in the non-consumption industries; and both have found it necessary to adopt rigid control over their economies in an effort to mitigate the strain resulting from the inordinate demand of the state on the resources of the country. But while there are great resemblances in trends and policies, there are also essential differences growing out of the variations in economic resources and industrial developments.

The natural resources of Italy are far less adapted than those of Germany to the development of heavy industries which are essential to carry out a program of rearmament and self sufficiency. Italy is largely dependent on foreign countries for coal and metals, and the Italian heavy industries are far less developed than the German. On the other hand, Italy is far less dependent for essential foodstuffs, like vegetables, fruits and vegetable oils which form an important part of the national diet and are among the chief Italian exports.

In foreign trade, Italy, in contrast to Germany in recent years, normally has a considerable unfavorable balance which is generally covered by the income from

tourists and immigrant remittances. More recently however, owing to political uncertainties and currency restrictions, the income from the latter has been considerably reduced and strong counteracting measures in the way of foreign trade and exchange restrictions have been found necessary to keep the trade balance within manageable limits.

On the other hand, both countries import some grain, and are dependent on imports for a substantial part of their consumption of petroleum products and raw material for their most important textile industries. However, Germany has on the whole made greater progress in the development of ersatz industries and has achieved infinitely greater efficiency in rationing and planning, especially in connection with stabilizing price and wage levels.

Italian agriculture is intensive and traditionally concentrates on a few specialties, for all of which there has been a large export surplus; on the other hand, production of many other agricultural products has been insufficient for domestic needs. In recent years, attempts have been made to increase production of the deficient items. Wheat has assumed the lead in acreage for all crops, and with the introduction of improved cultivation methods together with some rise in acreage the crop in good years has become almost sufficient for local needs. Following a poor wheat crop in 1936, imports in 1937 were valued at \$73 million, but the following year's good crop made it possible to reduce the import to \$12 million in 1938. Regulations requiring mixing of other grains with wheat flour help to keep down imports. The 1938 crop was about equal to that of 1937 (about 300 million bushels). Production of corn and rice also approximate domestic requirements.

Oils and oilseeds do not cover consumption; imports of oilseeds and oils and fats (animal and vegetable) amounted to \$15 million in 1938. Olive oil production is under domestic needs: exports are large but even greater amounts are imported for re-export after further refining, or for Italian consumption.

There is a large net importation in meats and eggs and in hides and skins.

Although nearly 18 per cent of the land surface of Italy is wooded, lumber resources are meager and large amounts of lumber are imported despite the en-

couragement of the use of concrete in building and the recent reduced construction activity.

The lack of mineral resources is one of Italy's outstanding characteristics, and the attempts at self-sufficiency in this field, though increasing output to a considerable extent, have served to emphasize the deficiencies in this branch. Mercury ore, sulphur, bauxite and zinc are the chief resources.

The self-sufficiency program, as applied to minerals, in addition to the attention given to increasing production, involves the use of substitutes of which a few examples may be given. Aluminum (which can be produced from Italian bauxite), is being substituted for copper wherever possible, but imports of copper have not been reduced. Hydro-electric power is used to replace coal, but much of the available power is already being utilized and imports of coal have not declined materially, still amounting to nearly 12 million tons valued at almost \$90 million in 1938.

Italy's mineral oil resources are negligible. Until the past few years petroleum products were imported in the form required, but refining and storage plants recently constructed in various port cities have stimulated the importation of crude oil at the expense of refined products; production of gasoline increased from 130,399 metric tons in 1936 to 402,978 tons in 1938, of kerosene from 41,140 to 145,342 tons, lubricants from 20,795 to 75,774 tons, and other products correspondingly.

Under the self-sufficiency and armament programs Italian manufacturing has become increasingly diversified, especially in the chemical and heavy industries. Textiles and special products, however, still predominate. The only textile raw materials of which Italy has an adequate supply are hemp and silk. Practically all of the raw cotton and jute is imported, much of the rayon is made from imported cellulose, despite the increasing use of local straw, reeds, etc., and local supplies of wool are supplemented by heavy imports; more than 14 per cent of the total value of Italian im-

(Continued on page 51)



TENNESSEE'S NEW AIRPLANE PLANT

THE pressing need for increased manufacturing facilities fostered by the unprecedented demand for both commercial and military aircraft, necessitated the building of a new plant at Nashville, Tenn., to augment the present Aviation Manufacturing facilities at Wayne, Mich. (Stinson); and Williamsport, Pa. (Lycoming engines and propellers).

The new Stinson million dollar plant is the first major aircraft manufacturing unit to be built south of Baltimore. Nashville was selected because of its inland location as well as many other factors favorable to aircraft manufacturing.

The problem encountered by Albert Kahn, Inc., Architects & Engineers, was the sub-assembly and final assembly of the smaller types of airplane on a group basis, for which the principal requirements were clear manufacturing space, uniform daylighting and flexibility of design to permit economical expansion in either the subassembly departments or in the main assembly section. In addition to immediate requirements, consideration had to be given to the provision of ample manufacturing space for the largest type of aircraft production and abundant space for constructing larger types as they are developed.

The new plant is located on a 36-acre tract adjoining the Nashville Airport. It consists of a 122,914 sq. ft. factory building with a 20,228 sq. ft., office building, and paint shop, paint storage, wood shop and hammer room, also a sand-blasting unit conveniently located between the

PLANT

fabricating department in the main building and the paint shop. Employment is expected to exceed 1,000 persons.

All incoming material storage departments are so located that after inspection, material and parts can be moved directly into three straight line production departments located in bays of 100 ft. clear span, terminating in the assembly division of the manufacturing unit.

The assembly division is 125 ft. x 300 ft. Large sliding doors 120 ft. wide x 24 ft. high made in six sections, all sliding in one direction, are located at each end so that the finished planes can be run out on the wide concrete aprons which connect the factory with the Nashville Airport runways.

Balconies provide additional facilities for the sub-assembly of various parts and for storage of manufactured parts to be used as needed in the production lines.

The factory building is 302 ft. wide x 407 ft. long, divided into Production Department (281 ft. in length) and the remainder devoted to Assembly Department. Column spacing in Production Department is 40 ft. x 100 ft. with a clear height of 16 ft. under low bays and 26 ft.

in monitor bays. The Assembly Department has an open span of 125 ft. and is 302 ft. long, with a clear height of 24 ft. to the underside of trusses.

All exterior walls have glazed steel sash and brick curtain walls with gunite spandrel walls between sash and metal roof cornices.

The location and area of the pivoted sash ventilators in the sides of the building and roof monitor allow for complete control of air and ventilation of buildings under normal circumstances. The sash in the west and south elevations, including the south sides of monitors, are glazed with a special non-glare heat-resisting glass (Coolite).

The roof truss construction is of economical structural design effected by continuous beam members adapted to alternating high and low roof monitors which results in uniformity of lighting. Wood decking is used throughout, waterproofed with tar and gravel roofing.

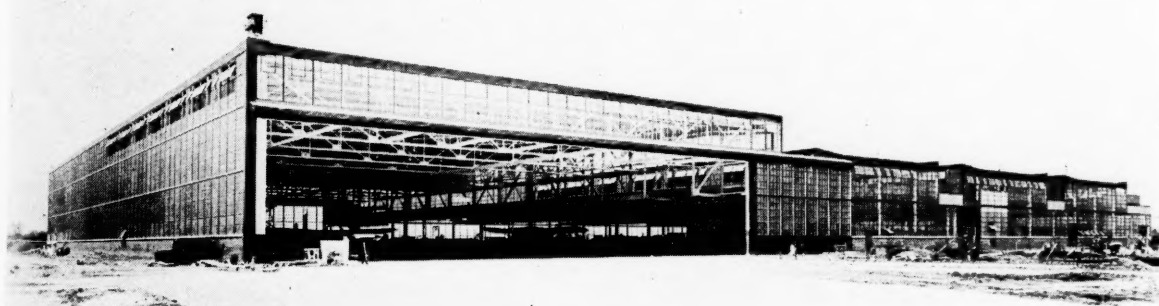
The roof is of monitor type with side pivoted ventilating sash so arranged that the ample glass area gives uniform intensity of daylight throughout the working plane of the large floor area.

Cement floor with special hardening material is used throughout the manufacturing section.

Situated conveniently throughout the manufacturing area are overhead toilets and locker rooms, enclosed by metal partitions with concrete floors. These rooms are placed on bottom chord of roof

(Continued on page 56)

Top—Side view of the new unit with office building on left, the second floor of which is given over to engineering. Below—The rear end of the plant with huge doors opening on a runway connected with the Nashville airport runways



A NEW AGRICULTURAL EMPIRE OPENED FOR DEVELOPMENT IN THE SOUTH



While a number of large industrial concerns have established their plants in cities located on the lower Mississippi, adjacent to the area described by Mr. Fox in the following article, they have been placed in such cities as Memphis, Natchez and Baton Rouge where the elevation is more than one hundred feet above any former high water. But, with the completion of flood control projects, it is anticipated that many companies will seek locations in this new alluvial basin. Large packing companies, together with those interested in the manufacture of sweet-potato starch, are already looking the situation over.

The very large production of alfalfa hay in the Delta region has attracted alfalfa meal manufacturing companies, and at the present time investigations are under way leading to the establishment of a number of dehydrating plants for the manufacture of alfalfa meal.

The reduction of the cotton acreage has resulted in more attention being paid to the raising of oats and corn, and a number of grain elevators are being established. Feed mixing mills are investigating Valley locations, making it evident that industry will rapidly find its way to an area offering exceptional advantages. —Ed.

BY

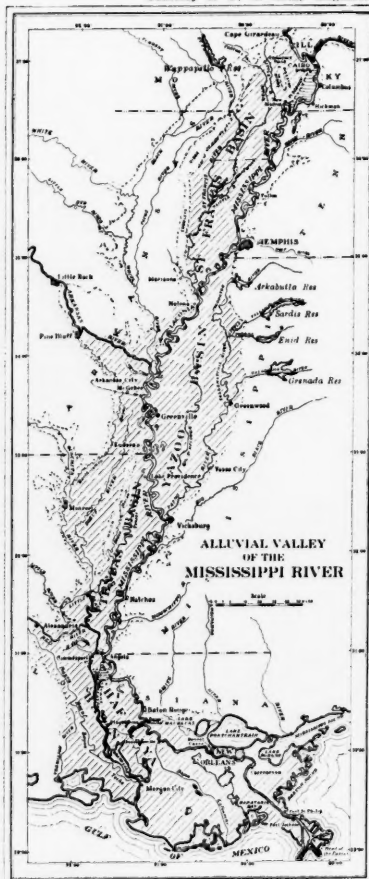
John A. Fox,

Manager Chamber of Commerce
Greenville, Miss.

IT will be interesting to those concerned with the development of the South and its resources to know that within the last 25 years the equivalent of a new state has been added to the Southern territory. This newly annexed territory comprises an area of nearly 30,000 square miles, embraced in the alluvial basins adjacent to the Mississippi River in the Southern states of Arkansas, Louisiana, Mississippi, and Missouri, South of the Ohio River. The soil comprising these basins is pure silt, deposited by the waters of the river it-

The several alluvial basins comprising this new territory include: St. Francis Basin (Mo. & Ark.) 6,706 sq. miles; White River Basin (Ark.) 956 sq. miles; Yazoo Basin (Miss.) 6,648 sq. miles; Tensas Basin (Ark. & La.) 5,370 sq. miles; Atchafalaya Basin (La.) 8,102 sq. miles; and Pontchartrain Basin (La.) 2,901 sq. miles, making a total area of 29,783 sq. miles and a levee line of 1,466 miles.

Courtesy of U. S. Army Engineers.



self to a depth of from 500 to 1,000 feet during the millions of years that saw these lands covered annually with the silt bearing waters of the great river.

The reclamation or protection of this extensive area of 30,000 square miles in the heart of the country has been going on spasmodically for a good many years, but owing to the fact that the National Government had never recognized its obligation to protect these lands until 1927, it had never been definitely and permanently guaranteed protection sufficient to warrant its full development and cultivation until the National Flood Bill was passed in 1928.

The great flood of 1927, which broke the levees and inundated many of the basins comprising this vast area, causing over a billion dollars in loss, so shocked the people of the nation that public sentiment was aroused and Congress was urged to take cognizance of the matter and provide the means necessary to remove forever the flood menace to this rich empire.

Accordingly, in 1928 an Act was passed by Congress authorizing the expenditure of \$327,000,000 by the Corps of Engineers of the United States Army to carry out plans for which estimates had been made that would raise the levees to sufficient height, cut off many of the bends so as to lower the flood crest, and provide spillways or outlets at strategic points such as would accomplish the desired end.

After 10 years of persistent and continuous work on the part of the Corps of Engineers of the United States Army, assisted by the various levee districts in providing rights-of-way and easements, there now exists a levee line, or continuous embankment, on both sides of the river, whose aggregate length is approximately 1,250 miles, confining the river to its natural bed throughout its thousand



mile course from Cairo, Illinois, to the Gulf of Mexico.

The work is now practically completed and last November General Harley B. Ferguson, who had charge of the undertaking, retired and received the plaudits of more than a million grateful inhabitants of the valley.

Thirteen cut-offs have been made between the mouth of the Arkansas River and the mouth of the Red River, by which the length of the channel has been shortened 115 miles, with a consequent lowering of the former flood crest some eight or ten feet along this stretch.

In addition to the flood protection afforded this alluvial region, the work has resulted in the completion of a nine-foot minimum depth channel for navigation throughout this thousand mile route, so that fleets of barges bearing cargoes of from 6,000 to 12,000 tons are now plying the river and affording low cost water transportation to the adjacent country.

This rich area, more than 500 miles long and 50 miles wide, separating the

Above—A hydraulic dredge making one of the 13 cuts shorten the river 115 miles. Below—An air view of the Mississippi River Levee construction with Bucyrus-Erie tower excavators.

eastern and western parts of the South, being thus definitely safeguarded, new opportunities are now afforded for settlement and development heretofore unequalled.

Any account of the reclamation of this extensive area covering a period of over fifty years would be incomplete, however, without some mention of the part that has been played by the manufacturers of improved machines and equipment that made the work possible, and doubtless, these firms feel a pride in the part they have played in creating this new agricultural empire.

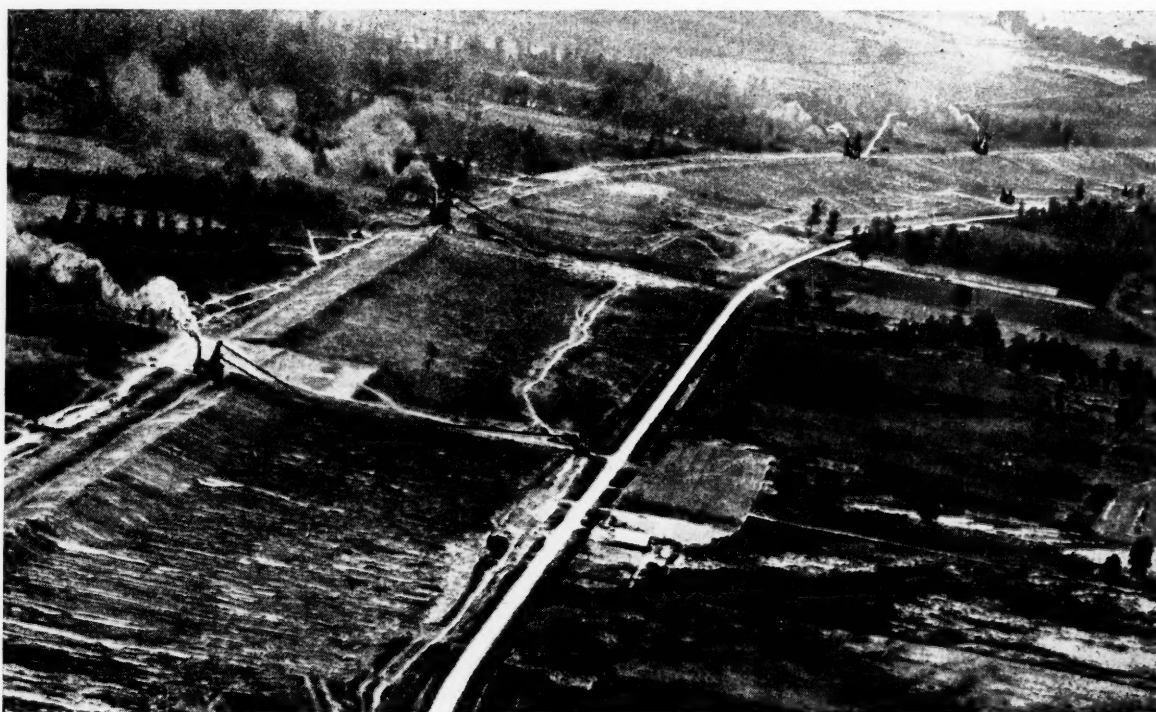
The Lidgerwood Manufacturing Company and the Bucyrus Company both spent large sums in 1912 and 1913, experimenting with drag-line and overhead cables in an effort to reduce the cost of moving dirt into the levee embankments,

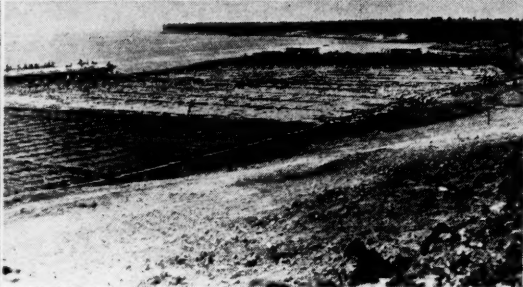
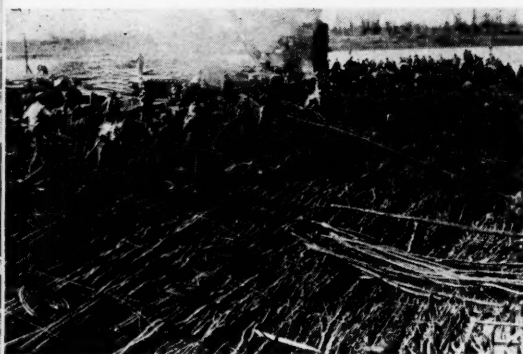
before success was attained. The Caterpillar Tractor Company deserves much credit for the types of tractors that were developed in an effort to lessen the cost, increase the speed and greatly facilitate the work of the contractors.

The American Steel and Wire Company has furnished thousands of tons of wire and steel needed in fabricating the mattress revetments that were used in bank protection and in concrete reinforcement. Millions of tons of cement provided by the several Portland Cement Companies have been used in bank protection, drainage, culverts, and road construction.

The Marion Steam Shovel Company and the Northwest Engineering Co. have both furnished hundreds of improved dipper dredges, clamshells and other forms of excavators needed in constructing the thousands of drainage canals now serving this area.

Prior to 1880, nearly all of the earth placed in the levee embankments was by wheelbarrow and man power. In those days it was no uncommon sight to see a





Left—Weaving a 3,000-ft. willow mattress for Memphis Front revetment, 227 miles below Cairo, Ill., Oct., 1930. Lower left—A willow mattress almost completed. Top right—Before placing the concrete, which is one of the modern substitutes for willow mats, the forms are inspected and a final cleanout made in the Vicksburg District. Right center—A completed string-out and finished work to right at Osceolas, Memphis. Lower right—Dual discharge of concrete in the Memphis District.

driven engines enabled the dipper dredges to cut the thousands of miles of drainage canal now traversing the several basins; modern types of road grading machines made the recent road construction possible, and mechanized farming is now bringing thousands of acres of this new land into cultivation.

The extensive hard-wood forests that covered this twenty million acres, as late as 1900, have yielded over one hundred billion feet of oak, ash, gum, cottonwood, and cypress lumber during the last thirty-five years, totaling a value of over a billion, five hundred million dollars.

In the harvesting of this forest crop, the manufacturers played their part in providing improved types of saw mill machinery and equipment for loading, transporting, and manufacturing logs.

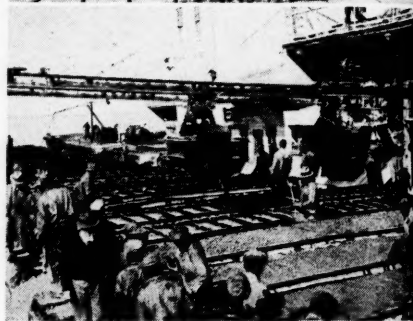
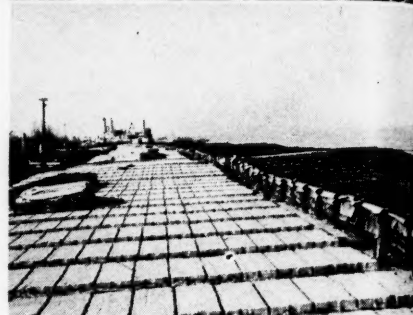
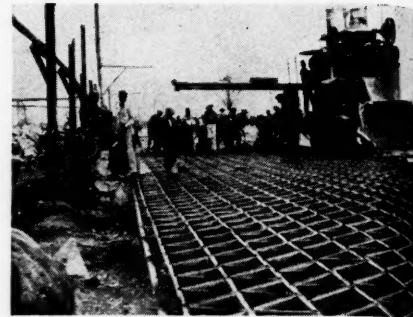
This billion dollars of new wealth has been reflected in the population and growth of the principal cities in the Delta, or adjacent to it. Blytheville, Arkansas, for example, in the center of the St. Francis Basin, has grown from a small hamlet laid out in a wilderness in 1900 to a modern city of over 12,000 at the present time.

Memphis, adjacent to the St. Francis Basin on the west and the Yazoo Basin on the south, has grown from 102,000 in 1900 to a metropolitan center of over 255,000 at the present time.

Greenville, Mississippi, the principal city in the Yazoo Basin, has grown from a little over 4,000 in 1900 to a city of 21,000 at the present time.

The data is not available to show the

The latest method of moving dirt by a Le Tourneau machine which moves 28 cubic yards each trip.



thousand men at work on a piece of construction, each moving by wheelbarrow a single cubic foot of earth up a long runway into the embankment. This was followed by the use of the steel scraper, or slip, drawn by mules that moved about three cubic feet at a load. Then, about 1890 the wheel-scraper, capable of carrying a third of a cubic yard at a trip, was introduced with marked effect in economy and speed. The next innovation came about 1908, with the Caterpillar Tractor drawn plow, belt conveyor, and the motor driven dump-cart.

In 1912 the drag line method was introduced by the use of which nine cubic yards could be moved at a single trip, and now by the use of the Caterpillar Tractor and modern dirt moving machines, as much as 25 cubic yards are being hauled at one time.

The introduction of the hydraulic dredge made it possible to economically and speedily cut through the necks on the river and shorten the channel; increased yardage capacity and gas motor

marked results that have followed leveeing and draining all of the sections comprising the entire 30,000 square miles of alluvial country, but as the Yazoo Basin section is typical of the three largest basins—the Tensas, the St. Francis, and the Yazoo—some idea of what is taking place may be gained from a few facts which are available about this basin. It comprises an area of 6,648 square miles—4,254,700 acres—which is protected by a levee line 285 miles in length bordering the river from Memphis to Vicksburg.



Only about half of this area is now in cultivation, although clearing and developing has been making marked progress during the last five years. In Washington County alone, over 40,000 acres have been transformed from cut over swamp land into productive farms since 1935.

As to the productiveness of these rich reclaimed lands exemplified by the Yazoo Basin section, sixteen counties with their lands only half reclaimed, produced 635,000 bales of cotton, or more than half of the 1,120,000 bales grown by the 82 counties in the entire state. They produced

Above—A Northwestern Engineering Co. machine in operation of levee construction employing the drag line method. Below—Hauling 2 dump wagons from 2-yd. shovels, these 6 Caterpillar Diesel Seventy-Five tractors together averaged 6,000 yards daily on levee construction work at Stovall, Miss.

11,924,000 bushels of corn, or one-third of the total production of the state; and last year one county in the Delta area produced more oats than all the other counties of the state combined.

With flood protection now definitely

assured, the reclamation and development of the remaining half of this alluvial empire will take place rapidly.

Within the last decade modern paved highways have been constructed across this fifty mile wide strip at New Orleans, Baton Rouge, Natchez, Vicksburg, Greenville, Memphis, Blytheville, and at Caruthersville, and within a few months three additional river bridges spanning the Mississippi will be in operation, making seven in all between Cairo and New Orleans, thus linking the east and west half of the formerly divided Southern

(Continued on page 52)



South's Contract Total in June Highest for Eight Month Period

SOUTHERN construction during June experienced the best month in the last eight, with the total of contracts awarded for all types of work reaching the high level of \$90,809,000. Other months have topped this figure within the last decade, but no other June has equalled it since 1930. The figure for the current June was bolstered by encouraging increases in the various fields of construction.

June projects either financed entirely or partly sponsored by Government agencies totaled \$65,338,000. Private construction, covering such work as commercial, residential, church and theatre projects and industrial contracts made up the remainder. Somewhat less than one-half of the Government work represented expanding army and naval bases, post offices and similar Federal structures, as well as migratory labor camps.

A large portion of the Federal expenditure is going for facilities to protect the Florida peninsula and the Gulf Coast. Corpus Christi, Texas city on the Gulf of Mexico about a hundred and some miles above the Rio Grande, is the site of the new \$23,000,000 naval air base, which was instrumental in raising the total of Government contracts to their high peak. This award which went to Brown, Root, Inc., and W. S. Bellows Construction Co., both of Houston, and Columbia Construction Co., of Oakland, Calif., was made under a new legal provision allowing the Secretary of the Navy to negotiate with reputable and qualified contractors and contract for construction of projects in the Naval Appropriation and Second Deficiency bills.

Other naval construction is proceeding at Pensacola, the Navy's Annapolis of the Air in northwest Florida; at Jacksonville, where a new Florida east coast naval air station is being built, and at various points further up the Atlantic Coast, including Norfolk, biggest of Atlantic Coast naval bases, where \$12,246,000 is to be spent for increasing naval aviation facilities.

Tampa, on the western shore of the Florida peninsula, is where the Army is building MacDill Field, its big southeastern air base, and Mobile, not far across the Florida-Alabama line from the Pen-

PRIVATE CONSTRUCTION

	June, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1940	Contracts Awarded First Six Months 1939
BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$2,867,000	\$3,882,000	\$9,997,000	\$9,033,000
Commercial (Stores, Restaurants, Filling Stations, Garages, etc.)	2,326,000	2,764,000	16,102,000	15,143,000
Residential (Apartments, Hotels, Dwellings)	11,479,000	5,236,000	54,311,000	52,473,000
Office	197,000	859,000	3,311,000	11,997,000
	\$16,869,000	\$12,741,000	\$83,721,000	\$88,646,000
	\$8,602,000	\$22,509,000	\$75,571,000	\$47,889,000

INDUSTRIAL

PUBLIC CONSTRUCTION

	June, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1940	Contracts Awarded First Six Months 1939
BUILDING				
City, County, State, Federal	\$30,890,000	\$101,883,000	\$67,942,000	\$71,051,000
Housing	4,629,000	10,397,000	40,386,000	26,859,000
Schools	1,487,000	7,944,000	10,847,000	44,794,000
	\$37,006,000	\$120,224,000	\$119,175,000	\$142,704,000

ENGINEERING

	June, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1940	Contracts Awarded First Six Months 1939
Dams, Drainage, Earthwork, Airports ..	\$5,691,000	\$11,338,000	\$27,105,000	\$30,847,000
Federal, County, Municipal Electric	5,709,000	4,785,000	29,665,000	32,237,000
Sewers and Waterworks	885,000	3,128,000	4,719,000	16,460,000
	\$12,285,000	\$19,251,000	\$61,489,000	\$79,544,000

ROADS, STREETS AND BRIDGES

	June, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1940	Contracts Awarded First Six Months 1939
	\$16,047,000	\$63,537,000	\$73,965,000	\$93,697,000

TOTAL

	June, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1940	Contracts Awarded First Six Months 1939
	\$90,809,000	\$238,262,000	\$413,721,000	\$452,480,000

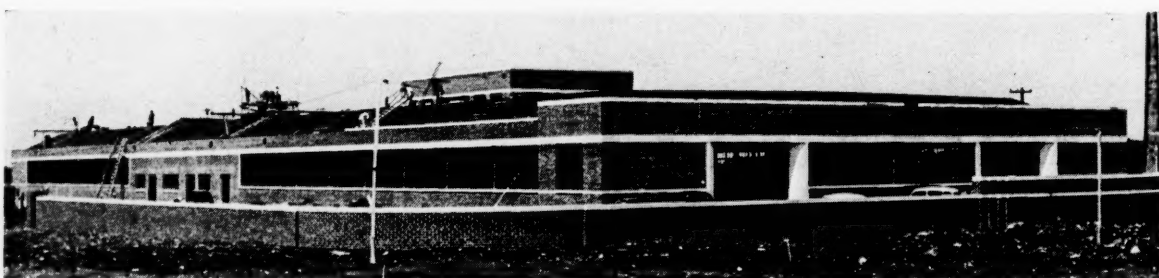
sacola naval development, is the site of southeast army air depot project. Military construction is also proceeding at Fort Benning, Georgia infantry and trade school training center; in the San Antonio area, where the Army's aviation training school is located, and at other places, including Barksdale Field, great-est of bombing practice reservations.

The Tennessee Valley Authority will share in the defense program, according to reports, if a recommendation of the President's National Defense Advisory Committee is followed for construction of another T. V. A. hydroelectric plant and addition of a steam generating plant to the T. V. A. system. Total cost of the two projects would be \$65,000,000. No appropriation, however, has yet been made. The most outstanding announced plant for

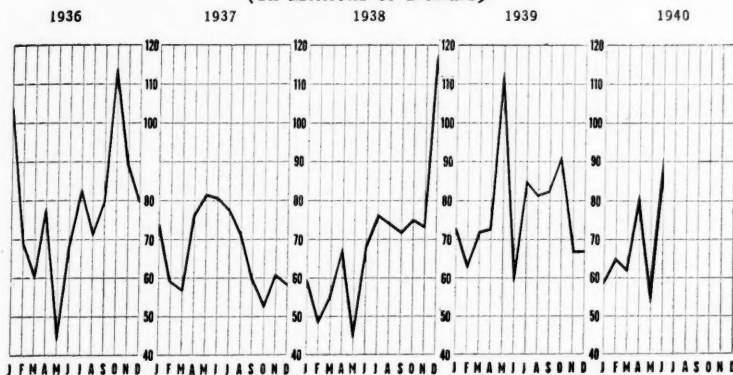
production of war materials is to be built in T. V. A. territory. The plant is to cost in the neighborhood of \$15,000,000 and is reputedly being financed by British Government interests. E. I. du Pont de Nemours & Co., long famous in the field of explosives and chemical developments, will both construct and operate the plant, which is expected to use large quantities of one of the South's important agricultural products—cotton.

Newest among the privately proposed power plant extensions was a \$3,000,000 addition at Plant Atkinson of the Georgia Power Co. This project follows in the wake of a number of others now being constructed by power companies at various points in the South, including a new \$4,000,000 plant at Macon for the same company. Reports persist about the plans of the National Power Policy Committee for a 2,500-mile network of transmission lines to connect strategic munitions manufacturing centers east of the Mississippi River. Potomac Electric Power Co. and the Consolidated Gas, Electric Light & Power Co., are now constructing huge additions to plants in the Baltimore-

The second unit in its \$500,000 building program nears completion by Campbell-Taggart Associated Bakeries which recently moved its headquarters from Kansas City to Dallas. The first unit, an office building, was occupied in January.



Southern Construction Trends by Months (In Millions of Dollars)



Washington area and both are reported to be planning still others. At St. Louis, the second of two Southern areas mentioned in the committee's reports, the Union Electric Co. is making important improvements.

Structural steel for the \$2,000,000 addition to the Alexandria, Va., plant of the Virginia Public Service Co. is now being erected (see cover picture). Alabama Power Co., a sister Commonwealth and Southern affiliate of the Georgia company, is erecting a \$4,000,000 plant at Mobile, Ala. Duke Power Co., North Carolina operative, is finishing one big project and rushing construction on another. Each represents expenditures ranging between eight and ten million dollars. Florida Power & Light Company's Dania project is costing \$3,000,000; that of the Louisville Gas & Electric Co., \$2,300,000. A \$1,000,000 extension is being made at Vienna, Md., by the Eastern Shore Public Service Co.

Added to these power developments, which may all be classed as measures not only for defense but also to insure adequate power sources for future industrial requirements, were several outstanding industrial developments in other fields. One was the large plant at Texas City, Texas, where Carbide & Carbon Chemicals Corp. will produce synthetic organic chemicals from refinery gases. This project, which is reported to involve millions, is being handled by Ford, Bacon & Davis, Inc., New York engineering concern.

Two hydroelectric plants—one on the Nantahala River and the other on Tuckaseegee River, in western North Carolina—are projected by Nantahala Power & Light Co., Aluminum Company subsidiary. Estimated cost of the work is put at \$15,000,000. New aluminum producing facilities were also reported planned for the Grand River area of Oklahoma, where a huge hydroelectric development is now being finished, although no confirmation could be obtained.

At Baltimore, where ship repairs have rocketed to high levels within past months, the Bethlehem Steel Co., proposes to extend its Key Highway ship repair yard in the upper harbor. An 11-acre tract adjacent to present facilities will be used for enlarging existing buildings at a cost of \$500,000. Another Baltimore concern—Rustless Iron & Steel

Corp., which has just completed extensive additions—has awarded contract for a \$200,000 melt shop at its Edison Highway plant. Weirton Steel Co., West Virginia affiliate of National Steel, is using 1,500 tons of fabricated structural steel in its two new strip mill buildings.

Magonolia Petroleum Company's proposal to quadruple capacity of its Fort Worth, Texas, refinery, headed developments in the oil field. Understood to involve expenditure of \$2,000,000, this project includes construction of a topping unit, cracking unit and catalytic polymerization facilities. M. W. Kellogg Co., New York specialists in this type of work, have the contract. Panhandle Eastern Pipe Line Co., of Kansas City, proposed 105 miles of pipeline, the \$2,800,000 expenditure to supplement a \$3,500,000 program now nearing completion. Roanoke Gas Co., Roanoke, Va., contracted for installation of two retorts to cost \$120,000. Paul H. Pewitt, Longview, Texas, is expected to build a \$250,000 gas recycling plant, with a similar amount to be placed in developing gas reserves.

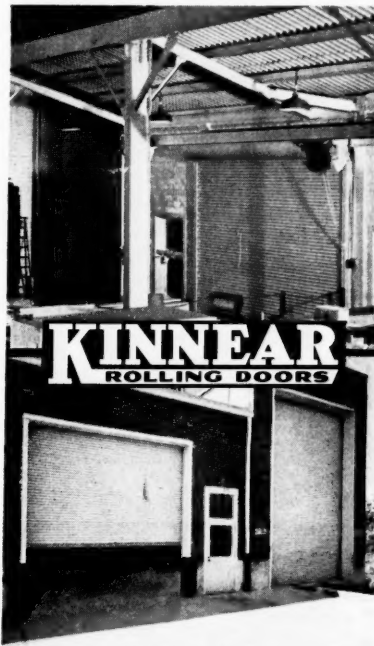
The top project in the textile field was the modernization program of the Aragon-Baldwin Cotton Mills, Rock Hill, S. C., where 400 Draper looms are to be installed to replace existing equipment. A new fibre board plant to be established near Hempstead, Texas, is to cost well up in the hundred thousands, with an initial \$100,000 expenditure for draglines, shovels and the two shafts into deposits of gypsum, which with bagasse (sugar cane fibre) will be used in a patented process. The Texas Gypsum Mining & Construction Co. has been chartered to carry out the project.

Among the variety of other projects of lesser size were a \$300,000 addition to the plant of American Stove Co., St. Louis, Mo.; a \$175,000 addition to the Gadsden, Ala., plant of Goodyear Tire & Rubber Co.; a \$100,000 reconstruction program at the plant of the Krey Packing Co., of the same city; a \$125,000 enlargement of warehousing and loading facilities at the Tampa, Fla., plant of Continental Can Co., and an expansion, including a new dry kiln for the Saluda River Lumber Co., Cleveland, S. C., with an indicated cost of \$100,000. Enlargement of the Houston, Texas, plant of the Continental Can Co., was also reported.

MAKE THESE DOOR SAVINGS *in* YOUR PLANT

Save Space: Kinnear Rolling Doors waste no usable floor, wall or ceiling space. They open out of the way, into a compact coil above the doorway. Materials stored within a few inches of either side do not obstruct their operation.

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THE KINNEAR
Manufacturing Co.
1600-20 Fields Ave.
Columbus, Ohio
Offices and Agents
in Principal Cities

New Industrial Plants and Expansions in the South During June, 1940

Contracts Awarded

Ala., Gadsden—Goodyear Tire & Rubber Co.; addition ...	\$175,000
Ala., Mobile—Gulf, Mobile & Ohio R. R.; equipment	
Ala., Mobile—Gulf, Mobile & Northern R. R.; extension ..	
Ala., Mobile—Hollingsworth & Whitney Paper Co.; laboratory building	50,000
Ala., Mobile—John Morrell Packing Co.; packing plant	
Ala., Montgomery—Jim Barnett Motor Co.; garage	
Fla., Fernandina—Container Corp. of America; building ..	50,000
Fla., Jacksonville—Southern Bell Telephone & Telegraph Co.; exchange building	66,296
Fla., Orlando—Orlando Utilities Co.; equipment	120,000
Fla., Tampa—Continental Can Company; expansion program	125,000
Ga., Atlanta—Georgia Power Co.; plant addition	3,060,000
Ga., Augusta—Southeastern Stages, Inc.; garage	
Ga., Trion—Trion Company; coal handling equipment	
Kentucky—Louisville Gas & Electric Co.; transmission line ..	
La., Alexandria—Calcasieu Sulphate Paper Co., Inc.; pipe line	
La., Alexandria—Independent Mill & Gin Co.; cotton oil mill	
La., New Orleans—Southern Bell Telephone & Telegraph Co.; exchange	150,000
La., St. Landry—Arthur Denes; pepper mill	15,000
La., Shreveport—Shreveport Journal; plant addition	41,044
La., Thibodaux—Louisiana Coca-Cola Bottling Co.; warehouse	
La., Westlake—Continental Oil Company; refinery	
Maryland—American Telephone & Telegraph Co.; repeater stations	
Md., Baltimore—Baltimore Transit Company; equipment ..	15,000
Md., Baltimore—Samuel Kirk & Son; plant addition	
Md., Baltimore—Revere Copper & Brass Co.; office addition ..	
Md., Baltimore—Rice's Bakery; alterations	
Md., Baltimore—Richfield Oil Corp. of New York; tanks ..	175,000
Md., Baltimore—Rustless Iron & Steel Corp.; melt shop ..	200,000
Md., Baltimore—Sherwood Bros., Inc.; alterations	
Md., Baltimore—Westinghouse Electric & Manufacturing Co.; factory	16,000
Miss., Greenville—Goyer Company; petroleum products terminal	15,000
Miss., Greenville—United States Gypsum Company; warehouse annex	
Mo., Kansas City—Black, Sivalis & Bryson, Inc.; plant addition	
Mo., St. Louis—McCabe-Powers Auto Body Co.; factory and office building	50,000
Mo., St. Louis—Missouri Pacific R. R.; equipment	
N. C., Charlotte—Transportation, Inc.; terminal	15,000
N. C., Charlotte—Transport, Inc.; buildings	45,000
N. C., Durham—Erwin Cotton Mills Co.; equipment	100,000
N. C., Lexington—Coca-Cola Bottling Co.; factory	
S. C., Rock Hill—Aragon-Baldwin Cotton Mills; loom replacement	
Tenn., Memphis—Minneapolis-Moline Plow & Implement Co.; plant	
Tex., Austin—Gibbard Investment Company; garage and warehouse	14,000
Tex., Baytown—Humble Oil & Refining Co.; tanks	
Tex., Dallas—Biltmore Garage; garage addition	100,000
Tex., Fort Worth—Central Freight Lines, Inc.; terminal ..	2,000,000
Tex., Fort Worth—Magnolia Petroleum Co.; refinery	2,000,000
Tex., Houston—Continental Can Company; can plant	
Tex., Houston—New Way Furniture Co.; plant	
Tex., Houston—B. A. Riesner & Son Co.; steel fabricating shop	
Tex., Port Arthur—Greyhound Lines; bus station	20,567
Tex., San Antonio—Durocrete Tile Co.; factory	
Tex., Texas City—Carbide & Carbon Chemical Corp.; plant ..	
Tex., Waco—Central Freight Lines, Inc.; freight terminal ..	21,187
Va., Ocean View—Old Bay Line; pier extension	
Va., Richmond—Southern Biscuit Co.; elevators	13,411
Va., Roanoke—American Bakeries Co.; bakery	
Va., Roanoke—Roanoke Gas Company; retorts	120,000
W. Va., Bluefield—National Electric Coil Co.; factory addition	
W. Va., Newell—New Castle Refractories Co.; refractories plant	40,000
W. Va., Paw Paw—United States Leather Company; cutting plant	
W. Va., Weirton—Weirton Steel Company; strip mill	200,000
South—Atchison, Topeka & Santa Fe Rwy.; equipment ..	

Contracts Proposed

Ala., Mobile—Alabama Power Company; power plant	
Ala., Mobile—Mobile & Ohio Railroad; equipment	\$3,265,000

Ark., Hardy—W. H. Arnold; ice plant	
Fla., Miami—August Brothers Bakery; addition	10,000
Fla., Miami—Charles T. Fuchs; bakery addition	
Fla., Miami—Miami Herald Publishing Co.; expansion and building program	650,000
Fla., Pensacola—City Ice & Fuel Co.; plant	
Ga., Atlanta—Montag Brothers, Inc.; paper plant addition ..	
Ga., Marietta—Glover Manufacturing Co.; munitions plant ..	400,000
Ga., Milledgeville—Milledgeville Telephone & Telegraph Co.; automatic equipment	
Ga., Quitman—Tip Top Manufacturing Co.; clothing factory ..	
Ky., Fort Knox—Louisville Gas & Electric Co.; transmission line and generating plant	2,420,000
Ky., Glasgow—White & Hite; flooring plant	
Ky., Louisville—Louisville Coca-Cola Bottling Co.; plant ..	
Ky., Louisville—Louisville Drying Machinery Co.; cattle feed plant	
La., Alexandria—Gulf State Lumber Co., Inc.; sawmill	
Md., Baltimore—Bethlehem Steel Company; expansion program	500,000
Md., Baltimore—Maryland Glass Corporation; bottling warehouse	
Md., Dundalk—Franklin Distilleries, Inc.; warehouse	
Md., Locust Point—Baltimore & Ohio R. R.; pier alterations ..	
Md., Relay—Calvert Distilling Co.; kettle building	
Miss., Greenville—Dixie Greyhound Lines; bus station	
Miss., Hattiesburg—Hattiesburg Creamery & Produce Co.; creamery	
Miss., Raymond—Gaddis Motor Company; garage	
Missouri—American Telephone & Telegraph Co.; repeater buildings	
Missouri—Western Natural Gas Co.; pipe line	30,000,000
Mo., Kansas City—Porterfield Aircraft Corp.; plant	
Mo., St. Louis—Krey Packing Company; plant reconstruction	100,000
Mo., St. Louis—Messmer Brass Company; plant addition	
North Carolina—Kaywoodie Pipe Company; plant	
North Carolina—Nantahala Power & Light Company; two hydro electric power plants	15,000,000
N. C., Raleigh—Atlantic Greyhound Corporation; bus terminal	
N. C., Shelby—Shelby Coca-Cola Bottling Co.; plant	
N. C., Shelby—Star Publishing Co.; acquired site for building	
N. C., Statesville—Burlington Mills Corp.; rayon throwing mill	
N. C., Thomasville—Carolina Coach Company; terminal ..	
Oklahoma—Stanolind Pipe Line Co.; pipe line	
Oklahoma City—American Compressed Steel Co.; scrap metal plant	30,000
S. C., Cleveland—Saluda River Lumber Co.; plant expansion ..	
S. C., Rock Hill—Samarkand Rugs, Inc.; machinery installation	
Tennessee—Moss Tie Company; timberland acquired	
Tenn., Memphis—Lion Oil Refining Company; storage plant ..	15,000,000
Tenn., Memphis—Tennessee Powder Company; plant	
Texas—Independent Natural Gas Co.; gas pipe line	28,698,000
Texas—Paul H. Hewitt; recycling plant	250,000
Tex., Dallas—Dallas Power & Light Co.; improvement program	75,000
Tex., Dallas—Southwest Automotive Company; expansion program	125,000
Tex., Houston—R. C. Combs Truck Lines; truck terminal ..	14,000
Tex., Houston—Pittsburgh Plate Glass Co.; paint manufacturing plant	350,000
Tex., Houston—Texas Gypsum Mining & Construction Co.; fibre board plant	200,000
Tex., Port Arthur—Bayonne Steel Barrel Company; plant ..	200,000
Tex., Port Arthur—Texas Company; refinery	
Tex., Quitman—Wood County Cold Storage Cooperative; cold storage plant	25,000
Tex., Texas City—Hanson-Buchanan Corp.; terminal	
Virginia—Chesapeake & Potomac Telephone Co.; construction program	107,000
Va., Criglersville—Chesapeake & Potomac Telephone Co.; office	29,000
Va., Norfolk—Virginian Railway; hopper cars construction ..	
Va., Richmond—East Coast Freight Lines; depot	
Va., Staunton—Augusta Cooperative Farm Bureau, Inc.; refrigerator locker plant	20,000
W. Va., Bluefield—Consolidated Bus Lines, Inc.; garage ..	25,000
W. Va., Morgantown—E. I. du Pont de Nemours & Co.; synthesis plant	
South—Chesapeake & Ohio Railway Co.; equipment	11,000,000
South—Illinois Central R. R.; equipment	940,000
South—Missouri Pacific R. R. Co.; equipment	8,000,000
South—Norfolk & Western Railway; improvement program ..	2,300,000
South—Panhandle Eastern Pipe Line Co.; pipe line	10,000,000
South—Pennsylvania Railroad; equipment	

It takes a TRUCK ENGINE to Stop the Gaff!



The International Truck line offers 50 models and 162 wheelbase lengths, from Half-Ton units to powerful Six-Wheelers (like these shown here). There's a size exactly suited for every hauling job and for every kind of going.



When ditches need digging no sissies need apply. It's a job for he-men, with seasoned heart and muscle and with callouses in the right places. The same goes for hauling!

A PASSENGER car engine is called on to deliver from a *fourth* to a *half* of its full power most of the time. The average heavy-duty TRUCK engine delivers from *three-fourths* to *all* of its power practically all of its working time.

In terms of delivered energy the output of a TRUCK engine is perhaps *four times as great* per mile of travel. If the average car is disposed of at 50,000 miles, hundreds of hard-working trucks should be entitled to retirement in a few months' time. Nothing could be further from the minds of either the builder or the owner of the good truck. Thousands of International Trucks

have traveled upwards of *two or three hundred thousand miles*, every mile a *truck mile*.

The automobile tests many a fine quality in an engine, but the TRUCK puts up with *a great deal more!* For more than a generation the builders of International Trucks have built ALL-TRUCK trucks—and TRUCKS ONLY. This will give you some idea as to why men buy more heavy-duty Internationals than *any other make*.

Remember that International sizes range from ½-ton to powerful 6-wheelers. See any International dealer or Company-owned branch.

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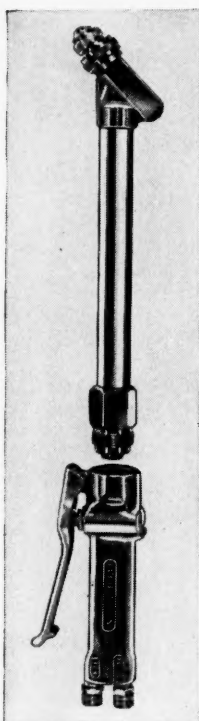
Chicago, Illinois

INTERNATIONAL TRUCKS

NEW WAYS OF DOING THINGS

Extension Spray Gun

Designed for painting large surfaces beyond the reach of the operator without the use of scaffolding and staging, an improved extension spray gun

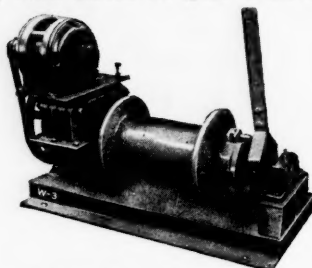


Type EX Extension Spray Gun

either of two standard Eclipse models to insure proper application of all types of materials.

known as Type EX has been introduced by the Eclipse Air Brush Company, Newark, N. J. The operator stands on the floor, and as the extension gun is supplied in lengths up to 12 feet, he can paint the average wall and ceiling without having to climb. The gun is also useful for painting large surfaces such as railroad cars and ship hulls. Surfaces below the level of the operator may be safely handled with extension gun equipment. The unit has a detachable gun grip control, and different lengths of shaft may be used in the same grip. The shaft turns in the grip so that spray may be applied in any direction, the spray head being supplied in

feature of particular significance where it is necessary to carry the pulling rope a considerable distance to attach to the object to be moved. A second important feature is the incorporation of a Stephens-Adamson SACO Speed Reducer, which enables the speed of the drum



SACO Speed Reducer Winch

to be determined by simply placing proper size sheave on the motor drive shaft of the SACO Speed Reducer, since first reduction of the SACO takes place through adjustable V-belts. Second reduction is through cut steel helical gears inside the cast iron housing.

Hand Lift Truck For Easier Handling

For handling heavier loads with less effort, the "Transliftor," a new hand lift truck, made in capacities from 3,500 to 5,000 pounds, has been introduced by The Yale and Towne Manufacturing Company, Philadelphia, Pa. It is available in either



wide or narrow frame models, both types having the same devices for load safety, featuring hydraulic release checks to prevent dropped loads and torsion type rear links to eliminate side sway. The handle, designed with an eye to the safety of the operator, has a lower flush-welded grip with no projecting edges. The truck has been designed for use with skid platforms and lends itself to carrying all sorts of heavy items.

Gasoline From Natural Gas

In the June number of "The Frick System," office publication of Frick Company, Waynesboro, Pa., manufacturer of ice and refrigerating machinery, etc.,

there is an article under the caption of "Vertical Compound Compressors Recycle Gasoline at High Efficiency," on the recovery of gasoline from natural gas by a new process.

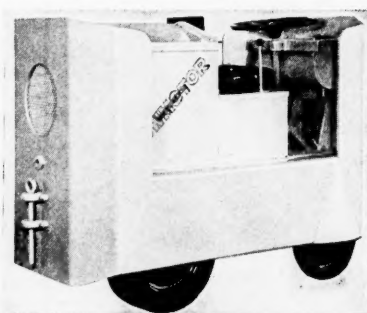
Known as recycling, the process involves condensing the gasoline at low temperature from natural gas, which flows from the wells at 1500 pounds pressure or more; after the gasoline has been removed, the dry gas is pumped back into the earth at a still higher pressure to maintain the original conditions under ground. Otherwise the withdrawal of great volumes of gas through the years would cause an expansion effect on that remaining, and the gasoline would be condensed before it could be brought to the surface.

Three plants using this process, under patents developed by William H. Vaughan, have recently been completed in the Long Lake Field, about half way between Dallas and Houston, Texas. The plants are owned jointly by the Tidewater Associated Oil Company and the Seaboard Oil Company, and are known as Cayuga No. 1, Cayuga No. 2, and Long Lake.

For the plant at Long Lake, Frick built duplicate sets of equipment, including two MS condensers, large receiver, high pressure trap, intercooler with extra heavy pipe, and 3 float controls with by-passes. In addition to two large compound compressors at Cayuga plant No. 2, Frick furnished two MS condensers, two water-cooled intercoolers, two gas and liquid coolers, five float controls, high-pressure trap, receiver, purger and pumpout compressor with motor.

Model CS Towmotor Tractor

Designed for strenuous pushing as well as pulling loads, a new heavy duty industrial tractor with special frame and bumpers has been introduced by the Towmotor Company, Cleveland, Ohio. The machine is declared to be especially adapted to handling unwieldy loads of steel in tubes or sheets with long overhang. Contours are rounded to avoid catching obstructions, while special shields give the driver and steering wheel more protection on



Industrial Tractor for Pushing and Pulling

sharp turns. Overall length of the machine is 71½ inches, width 42 inches, and outside turning radius 74 inches. Two ¾-inch steel plate bumpers, 48½ inches high by 42 inches wide form the integral end members of a rugged box type arc welded steel frame. The tractor has a drawbar pull of 4000 pounds and will pull 130 tons on level concrete. Its industrial type power plant develops 41 brake horsepower at 2000 r.p.m. and is built for peak capacity service 24 hours per day. A three speed transmission enables it to operate at any speed up to 8 miles per hour.

Upson Strong-Bilt Panels

In view of a growing demand for small homes and the interest builders are showing in "dry-built" construction, Upson Strong-Bilt Panels, recently announced by The Upson Company, Lockport, N. Y., should command more than usual attention. Marking an innovation in the building material field, these panels, which are 8 feet wide and 14 feet long, permit the covering of an entire wall of the average room with one panel. Tests show that walls and ceilings of an average small home may be applied — and completely finished with Upson Shad-O-Line Mouldings and a coat of paint—in three or four days.

SACO Speed Reducer Winch

Announcing a new addition to its complete line of hand and motor winches, Stephens-Adamson Manufacturing Company, Aurora, Ill., states that its new SACO Speed Reducer Winch is furnished in a variety of sizes to handle very small or large capacities. An outstanding feature of the winch is a jaw clutch which releases pulling rope when disengaged, a

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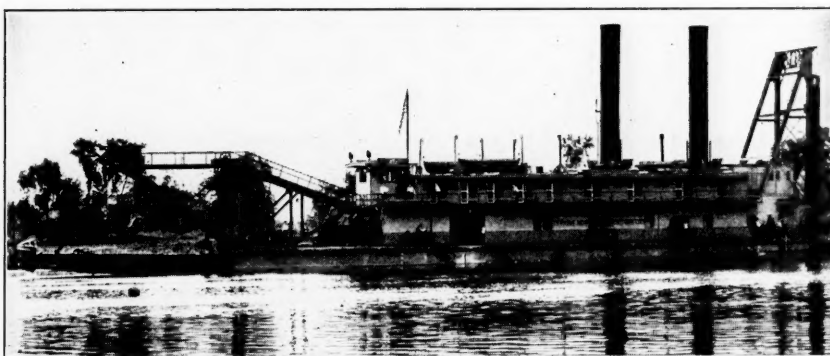
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Correspondence invited from corporate and private interests everywhere.

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Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

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» » » and « « «

INDUSTRY

Excess Reserves and Gold

Excess reserves are now at an all-time peak of \$6,600,000,000. These are bank funds for which there is no demand, and represent, as the name implies, the amount in excess of required bank reserves. The figure is nearly \$2,500,000,000 above what it was a year ago. Gold purchases by the Federal government account for a large part of the increase.

When the Treasury buys gold it gives its check, which is deposited by the seller in bank, and in turn in the absence of borrowers the bank places it on deposit with the Federal Reserve Bank. These excess reserves are not only idle, but they draw no interest.

The Gold Supply

The gold owned by the United States government has grown to \$20,000,000,000 and approaches three-fourths of the world's stock.

At the time gold was devalued we had \$4,000,000,000 or little more than one-third of the world's stock. The gold placed here by foreign governments and banks for safe keeping is earmarked and not counted in the above figures.

The belief that most of the gold is being kept at one place, Fort Knox, Kentucky, is incorrect. It is kept at other points as well as at Fort Knox, and as a matter of fact, the Kentucky stronghold does not have a major share of it.

The Federal Reserve Board explains the use to which the gold is put. "The Treasury has possession of the gold; bank deposits and bank reserves have both been increased by the amount of the gold, and the Treasury's checking balance at the Federal Reserve banks, reduced by the purchase of the gold, has been restored by credits based upon the gold."

The Board then adds: "The purchase of the gold has cost the Treasury nothing, for after the transaction it has the same amount in its checking balance that it had before. It has not borrowed an additional cent. It has acquired the gold and it has put the gold to use. It has put the gold to use, not by paying it out in the form of coin, not by depositing it in the Federal Reserve Bank, but by the use of credits based upon it payable in gold certificates, and in exchange for these credits representing the monetary equivalent of the gold, the Treasury is credited on the books of the Federal Reserve banks with funds to check against."

Highways For Defense

The Illinois Road Builders Association says: "An army of contractors and their trained personnel stands ready, if called upon, to do its part in the heavy construction vital to any plan of defense. * * *

"Highways, paved airports and other such construction eventually must be stressed. Every defensive step taken will increase the need for such heavy construction. * * *

"Will our government, in its emergency, intrust its need for quick results in the field of such construction to dreamers and relief labor? * * *

"This is a time to think only of the nation's present and
 (Continued on page 46)

MANUFACTURERS RECORD FOR

NATURAL GAS

A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

SOUTHERN NATURAL GAS COMPANY

Watts Building

Birmingham, Ala.

We have helped

many businesses that have brought us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*
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LONG LIFE TO LUMBER!

To add from 8 to 20 times the ordinary life and service you might expect from your lumber, use only pressure-preserved woods treated with ZMA or Creosote. Eppinger and Russell Co. has, for 62 years, been treating poles, ties, posts, piling, cross arms, cross ties and other timber for the nation's leading industrial firms and utilities. Safeguard your lumber against dry rot and termites by employing this outstanding wood-treating service.

PRESSURE-TREATING PLANTS AT:
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and
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WOOD PRESERVERS SINCE 1878
EPPINGER AND RUSSELL CO.
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CRUSHED STONE

Only highest grades of crushed
LIMESTONE AND GRANITE
Meeting all specifications

CAPACITY—8000 tons daily

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By making concrete pipe on the job with Quinn Forms you give more men more work, can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

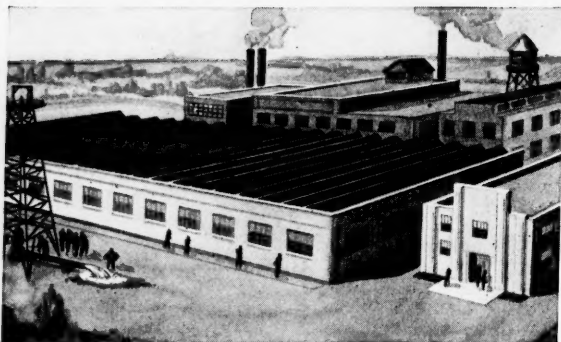


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Municipalities and Factories Use

Layne Water Systems

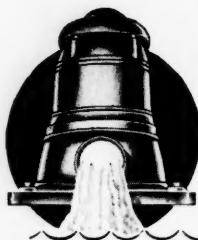
• **First:** back of Layne there are over fifty years of outstanding success—the kind of success that only satisfaction and performance could win. • **Second:** Layne offers world-wide experience in the mastering of every geological, mechanical and water production problem. And, • **Third:** Layne wells and pumps possess exclusive, patented and thoroughly proven advantages.

On reputation, Layne scores at the very top, a factor which promotes confidence in their ability and desire to fulfill contracts to the letter.

Furthermore, from Layne you can obtain, without obligation, dependable counsel and engineering service in the planning of a well water system that adequately and most economically fills your need. This service applies to the reconditioning of old wells or the installation of entirely new units.

Any Factory, Municipal, Paper Mill, Oil Refinery, Railroad, Irrigation or Business Executive may secure a complete file of bulletins, catalogs and folders on Layne Wells and Pumps without obligation by addressing,

LAYNE & BOWLER, INC.
Dept. X-1, Memphis, Tenn.



AFFILIATED COMPANIES

LAYNE-ARKANSAS CO., STUTTGART, ARK.
LAYNE-ATLANTIC CO., NORFOLK, VA.
LAYNE-CENTRAL CO., MEMPHIS, TENN.
LAYNE-NORTHERN CO., MINNAPOLIS, MINN.
LAYNE-LOUISIANA CO., LAKE CHARLES, LA.
LAYNE-NEW YORK CO., NEW YORK CITY, N.Y.
LAYNE-NORTHWEST CO., MILWAUKEE, WIS.
LAYNE-OHIO CO., COLUMBUS, OHIO
LAYNE-TEXAS CO., HOUSTON AND DALLAS, TEXAS
LAYNE-WESTERN CO., KANSAS CITY, MO.
CHICAGO, ILL., OMAHA, NEBRASKA
LAYNE-WESTERN CO. OF MINNESOTA
MINNEAPOLIS, MINN.
LAYNE-BOWLER NEW ENGLAND COMPANY,
BOSTON, MASSACHUSETTS
INTERNATIONAL WATER SUPPLY, LTD.,
LONDON, ONTARIO, CANADA

LAYNE

PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries,
Railroads, Mines and Irrigation

Finance and Industry

Highways For Defense

(Continued from page 44)

future, and contractors will not quibble over contract or fee methods. Whatever system is satisfactory to the government will also be satisfactory to the contractors. * * *

This directs the spotlight to an important situation which doubtless the government has in mind. Many important highways need rebuilding to stand the strain of heavy motorized army units. Bridges in many instances will have to be strengthened or rebuilt if they are to carry tanks weighing from 50 to 80 tons. The plans of the Federal government relating to highways are discussed in this issue in an article entitled "Highways for National Defense."

Railroads Are Ready

In view of the strain likely to be put upon the freight facilities of the railroads, it is encouraging to have the Association of American Railroads say they are prepared to meet the emergency. It is understood that plans have been carefully made to avoid the bottle-necks of the last war which crowded port terminals to an extent that resulted in heartbreaking delays in handling needed equipment.

In the meantime, the carriers are increasing their purchases of materials. The Railway Age reports railroad purchases of materials, compared to a year ago, show an increase of 29 per cent. These purchases amounted to \$249,000,000 for the first five months of 1940, or a gain of \$56,291,000.

Net operating income of class I railroads for the first four months of 1940 amounted to \$148,929,000, an increase of \$47,646,000, or 47 per cent over the same months of 1939.

Cut Government Expenses

While the business indices are turning upward and will ascend more rapidly as the large sums of money Congress is appropriating find their way into trade channels, there will be some hesitation in making large commitments until business gets an approximate idea of what its tax bill is going to be.

The need for more taxes being recognized, it is still more important that the amounts and kinds be known as soon as possible. To ascertain this, naturally Congress must have a pretty fair idea of how many more billions are to be appropriated for defense needs, and that requires at the earliest possible date a definite program of how much and for what. If speed is essential in getting the country prepared, it is clearly essential to know what is required.

Consumers are already realizing that the taxes adopted in June are being passed on to them. Prices are rising and soon the question will be how to meet them.

We have here the basis of an inflationary program that in the emergency of the times may be to an extent inescapable. To those who fear inflation as they do poison, and every thinking man does, it appears imperative to reduce the unnecessary reform expenses that have nearly swamped the country.

A lot has been published about unity; unity of thought and unity of objective, and there is not any course that will tend toward this much desired unity more quickly and effectively than to cut out useless expense.



who is

You could have knocked salesman Tolly over with a wisp of *Cellophane*. After calling repeatedly on M— Co. with no encouragement, after bruising his brains on solid apathy for many months, he was getting a good-sized order.

\$\$\$ "We want you to rush it," said the M—Co. purchasing agent.

\$\$\$ Who is "WE"? The purchasing agent? The M—Co. general manager, whom Tolly had twice been able to see? Tolly didn't know.

\$\$\$ For the record, the answer is in the president's office. The president had called in his general manager one morning to talk about Tolly's product advertised in The Wall Street Journal. From that mo-

"WE"?

ment, many months' selling effort became effective.

\$\$\$ That's how The Wall Street Journal helps to *make* sales. 86 per cent of its circulation is read by executives at their desks — where

they readily consult with their associates, get further facts, and *buy*.

\$\$\$ It gives you, per advertising dollar, more readers who are active management-executives of industrial corporations with assets of over \$1,000,000 than any other publication—*magazine or newspaper*.

\$\$\$ So use The Wall Street Journal to motivate the buying voice behind "*we*."

WALL
STREET
JOURNAL

SELLS MANAGEMENT EXECUTIVES

at point of sale

INDUSTRIAL NEWS

Chicago Bridge and Iron Texas Offices

Effective June 1, the Houston, Texas, office of Chicago Bridge and Iron Company, Chicago, Ill., was moved from 2919 Main Street to 918 Richmond Avenue. The personnel of this office, previously restricted to sales work, will be augmented by the transfer of S. C. Hamilton from Birmingham to Houston and by the opening of a new erection division office to handle the supervision of field work in the Southwest. W. T. Hudson will be in charge of the erection office in Houston and will be assisted by Dan O'Laurie.

The Dallas office of Chicago Bridge and Iron Company was also moved June 1 from the Liberty Bank Building to the Praetorian

Building and its personnel increased by the transfer of R. A. Williams from Chicago to Dallas.

National Power Show

Advance reports from the management of the Fourteenth National Exposition of Power and Mechanical Engineering, to be held at Grand Central Palace, New York City, December 2 to 7, indicate that the 1940 Power Show will be the largest since 1930. Already nearly 250 leading concerns have engaged exhibit space, and it is estimated that more than 40,000 visitors will see the Show. As in previous Expositions, the Fourteenth National Power Show is managed by International Exposition Company, Charles F. Roth, president, Grand Central Palace.

A. H. Borden Heads New Company

With an experience of 18 years in the grating floor industry, A. H. Borden now heads the Borden Metal Products Company of Elizabeth, N. J., with a staff of engineers, for the manufacture of gratings, safety steps, spiral stairs and special floors for industrial plants, refineries, subways, Government work, punch press work, etc. The company has taken over a plant on a trunk line out of New York in the vicinity of Elizabeth. District representatives will be appointed in principal cities.

Armstrong Paper Mill Division

The Armstrong Machine Works, Three Rivers, Michigan, makers of steam traps and other specialties, announce the appointment of Frederick G. Stamm, well known authority on paper drying, to head a newly organized Paper Mill Division of the company. In this connection, Mr. Stamm and Armstrong engineers, it is announced, have pooled their experiences and resources to design and build advanced types of equipment for controlling drying on and drainage of paper machines. Numerous installations have been made during the past three years and equipment and methods are said to have been thoroughly proven. The new division will render specialized mill engineering service in all parts of the United States and Canada to include: application of Armstrong-Stamm Graduated Dryer Temperature Control; Armstrong-Stamm Sheet Moisture Control; Armstrong-Stamm Drainage System, and application of various individual products in the Armstrong-Stamm line. The expressed aim of the company is to "offer the most advanced and most comprehensive service available to the paper industry today."

Leach Made Director of Gasoline Supply Men's Association

D. A. Leach, manager of the Tulsa, Oklahoma, office of the Chicago Bridge and Iron Company, Chicago, Ill., has been elected to the Board of Directors of the National Gasoline Supply Men's Association for 1940 and 1941. Other directors are: Charles D. Peterson, Fisher Governor Company; R. T. Roberts, Goulds Pumps, Inc.; Egon Koehler, Moorlane Company, and W. M. Gebro, Ingersoll-Rand Company.

Bethlehem Steel Promotes Murphy

The Bethlehem Steel Company, Bethlehem, Pa., has announced the appointment of John W. Murphy as assistant manager of sales in the Baltimore district. Mr. Murphy has served as salesman with Bethlehem since 1924 and has been in the Baltimore district since 1930. He was previously with the Midvale Steel and Ordnance Company as a concrete reinforcing bar engineer and sales representative in the Boston office. Born at Beverly, Massachusetts, Mr. Murphy was graduated from Massachusetts State College at Amherst, Massachusetts, in 1916, and during the last World War served with the Second Division.

Babcock and Wilcox Boilers for Tanker

Contract for boilers for a turbo-electric, 19,405-ton, all-welded tanker to be built for The Atlantic Refining Company by the Sun Shipbuilding and Dry Dock Company at its Chester, Pennsylvania, yards, has been awarded to Babcock and Wilcox Company, New York City. The contract calls for two boilers to operate at a pressure of 625 pounds per square inch at a steam temperature of 920 degrees Fahrenheit. Delivery is scheduled for the summer of 1941. A sister ship of the new vessel, the S. S. Robert C. Tuttle, was launched at the Sun Yards on May 11 and will join the Atlantic Refining fleet in July.

Allegheny Ludlum Houston Agents

Allegheny Ludlum Steel Corporation, Pittsburgh, Pa., recently announced the appointment of Peden Iron and Steel Company, Houston, Tex., as agents in that territory for Allegheny Ludlum tool and high speed steels. A comprehensive stock will be carried in Houston, from which shipments may be made promptly.

Asphalt Institute to Meet in Dallas

Dallas, Texas, has been selected by the Executive Committee of The Asphalt Institute, 801 Second Avenue, New York City, for the Thirtieth National Asphalt Conference to be held in the week of November 25, 1940. The announcement was made by J. E. Pennybacker, Managing Director of the Institute, after the Committee had considered claims of many competing cities. Preceding conferences have been held in New Orleans, Memphis and Los Angeles.



**"INSTALLED IN 1932,
This STERLING Turbine Pump
IN PERFECT
CONDITION TODAY!"**

Read This Excerpt From A Letter of
J. L. Biddle, Supt. of Maintenance
WESTVACO CHLORINE PRODUCTS, INC.

"We installed the first Sterling Turbine Pump in 1932 at 500' setting. This pump has been in continuous service since that date except when we pulled the well to inspect the pump and lower pump to 700' setting. On May 26, this year (1936), we again pulled this pump to inspect it, and again found it to be in perfect shape.
"Since 1932 we have installed many more of the same type of Sterling pumps . . . we are 100% sold on them!"

Such a statement by a man of authority who has no personal axe to grind should mean much to you who seek long-lived, trouble-free pump operation. Write for full details, catalogs and prices—today.

PRECISION BUILT

STERLING PUMP CORPORATION
Hamilton, Ohio Stockton, Calif.



STERLING
DEEP WELL TURBINE PUMPS

WRITE FOR CATALOG TODAY!

Few Sterling Pump owners need service—but if you need it, Sterling offers the highest class of service from coast to coast

Cement Association Opens Dallas Office

The Portland Cement Association of Texas has opened a district highway office at 1014-16 Tower Petroleum Building, Dallas, with W. H. Hitzelberger as district highway manager. This association is a national organization for the improvement of concrete and the extension of its use. According to Mr. Hitzelberger, the Dallas office will handle details pertaining to paving for state highways, counties, cities, airports and etc.

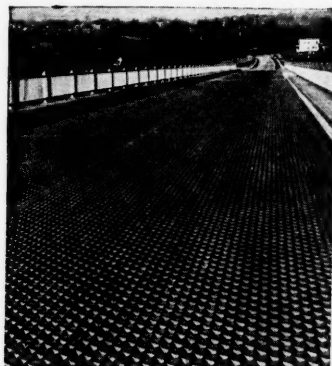
Koppers Coal and Wood Preserving Philadelphia Offices

With Warren M. Wells in charge as district manager, the Philadelphia offices of The Koppers Coal Company, Pittsburgh, Pa., have been moved from the Packard Building to 1458 Broad Street Station Building, according to Walter Rothenhoefer, general manager of sales. It is announced also by W. F. Munnikhuysen, president of The Wood Preserving Corporation, Pittsburgh, that the Philadelphia offices of this company, already in the Broad Street Station Building, were moved to the same suite occupied by The Koppers Coal Company. C. C. Calvin is the Philadelphia representative for The Wood Preserving Corporation. The Koppers Coal Company is an affiliate and The Wood Preserving Corporation is a subsidiary of Koppers Company.

Aubrey Made Director of Frick Company

W. H. Aubrey, vice president of Frick Company, Inc., Waynesboro, Pa., and sales manager of the Ice and Refrigerating Department, has been elected to the board of directors of the company. Mr. Aubrey is a graduate of the Georgia School of Technology and has been with Frick Company nearly twenty-three years, serving as Sales Manager since 1932.

NOT A PENNY for MAINTENANCE



Cairo Approach N. Y. State Hy. Dept.
Catskill, N. Y. Engineers

The above KERLOW BRIDGE FLOOR was installed in 1936. Engineers report Kerlow flooring has been free of all maintenance, even including snow removal. For your next Bridge Floor (old or new) specify KERLOW proven floors.

All types of Industrial Floors and Safety Steps.

Agents in all principal cities.

Write for special technical data

KERLOW STEEL FLOORING CO.

218-C Culver Ave., Jersey City, N. J.
Telephone BErgen 3-8932

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for Complete Markets and all BUSINESS-FINANCIAL-INDUSTRIAL News
The Newspaper of Successful Business Men and Investors
44 BROAD ST. NEW YORK, N. Y.

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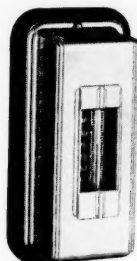
IMPORTANT Responsibilities

Better Living-
Better Working
Conditions

JOHNSON
CONTROL APPARATUS



Fidelity Investment Assn. Bldg., Wheeling, W. Va. Rowland M. Johnson, architect; Vincent Eaton, mechanical engineer, Cleveland, O. W. M. Clark & Co., Inc., heating and ventilating contractors, New Castle, Pa.



A thrift company, like all institutions which depend upon the confidence of the public for livelihood, has many responsibilities. It is important that the very building in which it transacts its business shall serve to suggest integrity of a high degree. Such a building must be equipped not only to serve the firm's customers in the best possible way, but also to satisfy still another responsibility. That's where the health and comfort of employees come into the picture. That's why at Fidelity Investment, a JOHNSON automatic temperature control system operates valves on all the radiators in the winter time and the dampers in the cooling system during warm weather . . . For automatic temperature and humidity control, applied to space heating and conditioning and to industrial processing, too, ask for a Johnson engineer from a nearby branch office. There is no obligation.

JOHNSON

Automatic TEMPERATURE AND AIR CONDITIONING Control

JOHNSON SERVICE COMPANY, MILWAUKEE, WIS. & BRANCHES IN PRINCIPAL CITIES

TRADE LITERATURE

CANNING MACHINERY—

Supplement to General Catalogue No. 600—illustrating and describing canning machinery for fruits, vegetables, sea foods, etc.

A. K. Robins & Company, Inc., Lombard and Concord Streets, Baltimore, Md.; foundry and plant No. 2 at Cardiff, Md.

COCKS, HOSE COUPLINGS, ELBOWS, ETC.—

Catalog No. 3—descriptive of the Company's line of cocks, hose couplings, elbows, fittings, swing joints, plugs, swing unions, etc., suitable for many industrial applications.

Pittsburgh Brass Manufacturing Company, 3225 Penn Avenue, Pittsburgh, Pa.

EMERSON FANS—

Catalog—illustrated and attractively printed in colors, devoted to the most complete selection of Emerson-Electric fans ever catalogued by the company; publication marks the 50th anniversary—1890-1940—of—

The Emerson Electric Manufacturing Company, St. Louis, Mo.

NORTON ABRASIVES—

Bulletin—"Research—Another Phase of Norton Service," outlining activities of Norton Research Laboratories for the improvement of Norton products and product applications, including abrasives, grinding wheels, grinding and lapping machines, laboratory ware, refractories, porous plates and tubes, non-slip tiles, treads and aggregates, etc.; all phases of Norton Service—distribution, engineering, research—are available through authorized Norton distributors, located in principal cities of the 16 Southern states and the District of Columbia.

Norton Company, Worcester, Mass.

INDICATING AND CONTROL INSTRUMENTS—

Bulletin No. S2-2—illustrating and describing the very complete line of Wheelco Thermocouples, Thermocouple Wire, Lead Wire, Insulators, Protecting Tubes, Etc.

Wheelco Instruments Company, 1929-33 South Halsted Street, Chicago, Ill.

SEALING CONTAINERS—

Booklet—36 pages, text book on "Sealing of Corrugated and Solid Fibre Containers" by J. D. Malcomson, revised second edition, generously illustrated and deals with all kinds of closures.

Robert Gair Company, Inc., 155 East 44th Street, New York, N. Y.

GOODRICH DEVELOPMENT IN RUBBER—

Booklet—"Typical Examples of Goodrich Development in Rubber," 30 pages, illustrating and describing many unusual modern uses for rubber; publication also presents a series of Goodrich advertisements, in 1939 and 1940, on these developments.

The B. F. Goodrich Company, Akron, Ohio.

STEELWELD BENDING PRESS—

Catalog No. 2002-36—illustrated, devoted to Steelweld Bending Presses; pointing out details of bending presses in order to help prospective purchasers determine, first, if such a machine would be an advantage to him and, second, why a Steelweld Press should be considered; carries through with reasons why all-welded steel construction is used, presenting details of frame fabrication, machinery design, data on dies, typical bends possible, multiple-punching and other operations, with valuable engineering information.

Steelweld Machinery Division, The Cleveland Crane and Engineering Company, Wickliffe, Ohio.

EXHAUST HEADS—

Publication 2960—illustrated, devoted to the Cochrane Exhaust Head which incorporates the principles of the Cochrane baffle-type steam separators used for removing oil and moisture from steam lines; unit is of one-piece semi-steel construction for 4 to 12 inch sizes and of welded plate for larger sizes; publication presents complete engineering data, dimensions, and list prices.

Cochrane Corporation, Philadelphia, Pa.

BELT FASTENERS AND RIP PLATES—

Bulletin No. F-100—illustrating and describing Flexco HD Belt Fasteners and Rip Plates, with complete details and list prices for the six sizes of Flexco HD Fasteners, used to join conveyor and elevator belts from 1/4-inch to 1 1/2-inch thick, of any width.

Flexible Steel Lacing Company, 4607 Lexington Street, Chicago, Ill.

P&H WELDER—

Bulletin W-26—illustrating and describing latest developments in the P&H-Hansen W-240 square frame arc welder, including single current control, frame and rod construction, and various applications of the multiple hook-up system.

Harnischfeger Corporation, Milwaukee, Wis.

FOUNDRY MECHANIZATION—

Bulletin B-6092—"Foundry—Keys to Better Foundry Mechanization", 16 pages, illustrating and describing seven types of Allis-Chalmers equipment for better foundry mechanization, including sturdy flask shakeouts for quick removal of sand from molds; large volume conditioners for screening, blending and aerating sand; vibrating screens for sand preparation; centrifugal pumps to provide water for hydraulic casting, washing and other foundry needs; cupola blowers with constant air weight control; Lo-Maintenance motors for every foundry operation over one horsepower; Texrope drive for shock-proof, non-slip, space-saving power transmission.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

WIRE ROPE SLINGS—

Handbook—"Rogers' Handbook," illustrated, dealing with Yellow Strand wire rope slings, Murray plated safety slings, fittings, socketing, splicing, engineering data, etc.

Broderick & Bascom Rope Company, St. Louis, Mo.

RYERSON STEELS—

Catalog for 1940-41—illustrated and indexed, covering the large and diversified stock of Ryerson steel and allied products available for immediate shipment; this publication of 256 pages presents new products, new analyses, and new sizes plus an increased number of helpful charts and tables.

Joseph T. Ryerson & Son, Inc., Chicago, Ill.

WELDED STEEL PIPE—

Bulletin No. 1021—"Alco Electric Welded Steel Pipe," citing eight good reasons for using electric welded steel pipe and illustrating applications.

American Locomotive Company, Alco Products Division, 30 Church Street, New York City, and Dunkirk, N. Y.

FROM COAST TO COAST!

You might be surprised to know how many industrial organizations are using Jones transmission products. From coast to coast you will find Jones cast iron pulleys, friction clutches, V-belt sheaves, and all the other items in the Jones line.

There are, of course, a lot of reasons that might be advanced as to why industrial organizations use the various Jones products. However, we are only going to mention two—"inbuilt sturdiness" and "time-tested."

Those companies that started using Jones products back as far as 1890 all testify to that inbuilt sturdiness that is so much a characteristic of all Jones design . . . and the fact that these companies keep right on sending in repeat orders is the best testimonial for the "time-tested" claim.

When you are in the market for hangers and bearings, anti-friction pillow blocks, couplings, friction clutches and V-belt sheaves, send your inquiry along to Jones. We believe you will find these Jones products measure right up to the time honored "satisfaction guaranteed" statement which, though a little threadbare from usage, still expresses the thought of old time craftsmanship.

W. A. JONES FOUNDRY & MACHINE CO.

4425 Roosevelt Rd., Chicago, Ill.

Jones



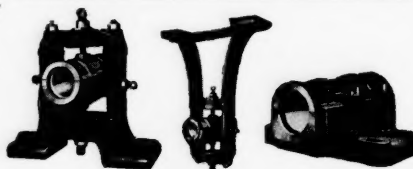
CAST IRON PULLEYS

Available in a wide variety of types including multiple piece pulleys, rubber covered pulleys, and flywheels.



FRICTION CLUTCHES

Complete range of sizes of either the open or enclosed types.

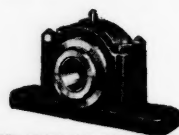


HANGERS AND BEARINGS

Duplex ring oiling Universal drop hangers, pillow blocks and bracket hangers. Babbitted journal boxes, common flat boxes, step boxes, and takeups.



COUPLINGS—High and low speed flexible couplings, flange, keyless compression, ribbed and jaw clutch couplings.



JONES TIMKEN PILLOW BLOCKS

Roller bearing pillow blocks and bearing units in spherical, cylindrical and hanger types.



V-BELT SHEAVES

Jones V-Belt Sheaves are made to order from high test cast iron. Furnished in all styles for all sizes of belts.

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

Foreign Nations' Insufficiency

(Continued from page 32)

ports in 1938 was contributed by these 4 textile raw materials. In the domestic market the mixing of artificial fibers is required in all cotton and wool goods, and imports of foreign raw materials are authorized only on the basis of export sales of finished goods. The textile industries were less prosperous in 1938 than in 1937, owing to a decline in foreign demand, and were the only group, except construction, in which the industrial production index was lower than in the base year 1928. Production of automobiles, after increasing sharply in 1937, was fairly well maintained in 1938. Shipbuilding maintained its activity on both domestic and foreign account; the low level of Italian construction costs appears to be due to the small wages paid.

HIGHWAY POSTS—

Bulletin — "Pressure-Treated Highway Posts," illustrated, pointing out the superiority of timber over other materials, and citing the advantages and types of pressure-treated timber posts.
The Wood Preserving Corporation, Pittsburgh, Pa.

LOOK AT ROYAL'S NEW NO. 1



with
MAGIC* MARGIN

*Trade Mark

JUDGE this New Easy-Writing Royal by results. Judge its Features of the Future by the time and effort they save . . . by the better typing they help your operators produce. Give Royal's New No. 1...THE DESK TEST.

ROYAL TYPEWRITER CO.
Baltimore, Md. Plaza 7033

ROYAL WORLD'S NO. 1 TYPEWRITER

JULY NINETEEN FORTY

HOW WE SAVED

Pandora's Life

by Westinghouse



• *If you have been one of the millions of visitors to the New York World's Fair you, of course, know that Pandora is the name of the cute Panda playing such a star role at the Exposition.*

• *Spectators who crowd around her cage these days little realize that if it hadn't been for the quick action and resourcefulness of our air conditioning engineers they might never have seen this rare animal that was brought all the way from the Himalayan Mountains.*

• *While recognizing that there was quite a bit of difference between the climate of Pandora's home land and that of Flushing Meadows, those in charge hoped that she would be able to adjust herself to the change. But she just couldn't.*

• *What happened was that she refused to eat or perform; and it became quite evident that she would probably die unless something was done about the weather in a hurry.*

• *With no time to lose, our air conditioning engineers were called in and asked to duplicate the cool, stimulating climate of Pandora's*

native habitat. So well did they succeed that immediately she started to perk up, and in no time was her playful self, keeping the crowd in uproars with her antics.

• *This is just one of the hundreds of air conditioning problems that have been put up to our engineers. Generally, when a person thinks of air conditioning he thinks of it in terms of making a home more comfortable, or of seeking escape from summer heat in a restaurant, store or theater.*

• *And yet beyond these now commonly accepted uses you'd be surprised to learn what a varied role our air conditioning is playing in industry.*

• *Taking just a few examples at random, we are reminded of the way our equipment helped a pharmaceutical house to step up the manufacture of pills and tablets; of how we aided another laboratory to hasten the cooling of creams and salves for quicker packing. Or take rayon, for example—its manufacture would be almost impossible if it were not for the part air conditioning plays in the drying of the fibres. Air travel, too, is a lot safer because flying instruments are now calibrated more accurately in air conditioned rooms.*

• *Naturally, to produce air conditioning for such a wide variety of applications requires engineering skill of the highest order, plus a range of equipment which extends in our case from a small self contained home unit to a 100 ton compressor.*

• *With such equipment now available, air conditioning is rapidly fulfilling its promise of becoming one of America's leading industries.*

A New Agricultural Empire in the South

(Continued from page 37)

states.

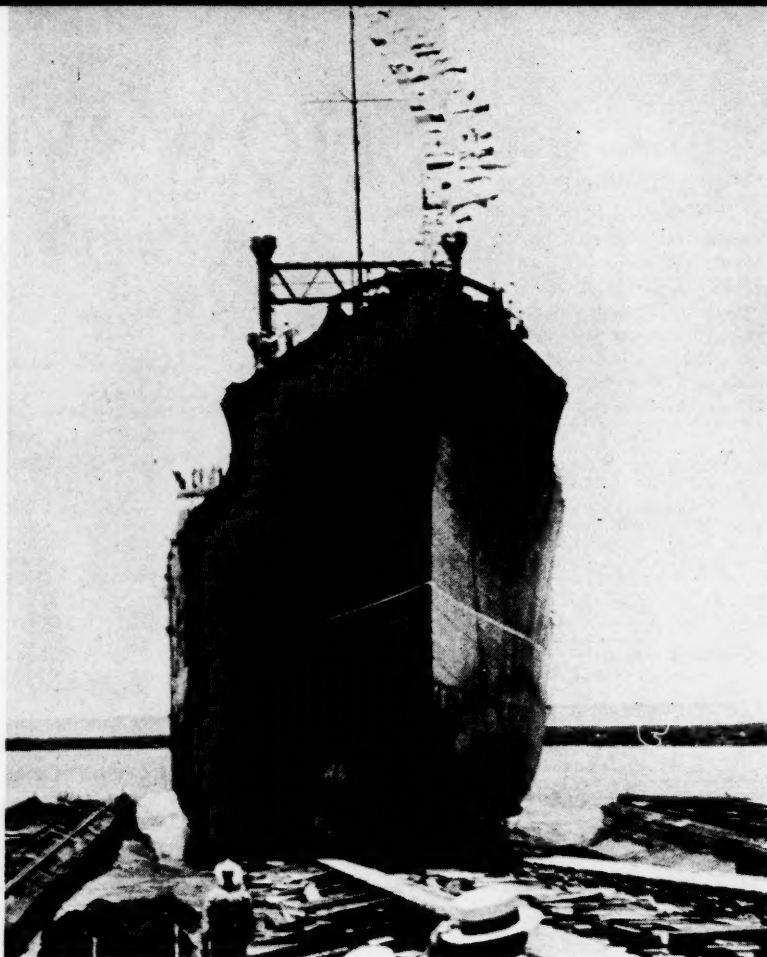
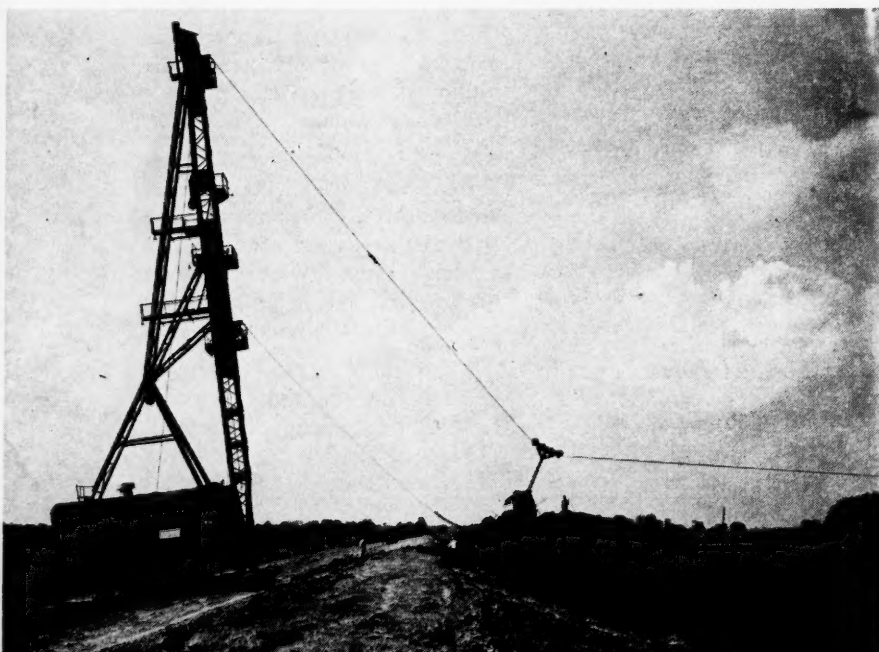
Industrial plants seeking new locations in the South now find at these cities located on the river from Cairo to New Orleans ideal conditions as to climate, water, labor, proximity to raw material and low cost transportation for the manufactured products, not only to the interior cities located on the extensive inland Mississippi River system, but also to foreign markets by way of the river and ships at New Orleans.

Thousands of miles of drainage canals are being dug, and thousands of miles of paved highways traversing the basins North and South and East and West have been opened for traffic. Millions of acres are being subdued by mechanized farm equipment, and this newly acquired rich agricultural area is beginning to manifest its economic value to the nation, as evidenced by the fact that four of its counties—Mississippi County in Arkansas, Bolivar, Sunflower, and Washington Counties in Mississippi—were shown by the Agricultural Census of 1935 to be the four richest agricultural counties in the United States.

In recent years, as the land became available for cultivation, the several large implement companies such as the International Harvester Company, the Moline Minneapolis Plow Company, the Allis-Chalmers Company, the Oliver Plow Company, the J. I. Case Company, and the Avery Company have perfected and provided suitable machinery for subduing and cultivating the new land.

A new service has been found for the aeroplane, used extensively now throughout this cotton area, in dusting poison

A Bucyrus Erie electric excavator working on a Mississippi levee construction job.



The S.S. Exchequer as it slid down the ways for a successful launching at the shipyard of Ingalls Shipbuilding Corporation, Pascagoula, Miss. Of all-welded construction, as are all ships built at this yard, this is an 8,900-ton cargo vessel of the C-3 type for the Federal Maritime Commission.

over the cotton fields to combat the boll weevil. Here in Washington County alone, one company maintains a fleet of fifty planes engaged in that work.

Dehydrating plants for the production of alfalfa meal from alfalfa clover have been devised and are now being used extensively throughout these reclaimed alluvial lands, making possible the growing

of alfalfa on a large scale. In 1938 sixty thousand tons were produced in one Delta county alone.

As we enter upon the new decade, this newly annexed area to the Southern territory bids fair to contribute largely to the nation's agricultural and industrial wealth.

Expansion of Magnolia Refinery at Fort Worth

Announcement that the Magnolia Petroleum Company will undertake at once an expansion and improvement program which will quadruple the size of the Magnolia refinery at Fort Worth was recently made by the Fort Worth Chamber of Commerce. Plans include increasing the capacity from 5,000 to 20,000 barrels of crude daily. An entirely new combination unit will be built and the present unit completely overhauled. All obsolete equipment will be replaced by the latest equipment known to the refining industry.

The payroll of the plant which now employs 115 men will be greatly increased. The present plant which was established 25 years ago is located on a tract of 413 acres and the tank farm which adjoins it has a storage capacity of 2,250,000 barrels. While no definite announcement as to the cost of the improvement has been made, it is understood that it will be in excess of \$3,000,000.



Keep your conveyor belts going with

FLEXCO

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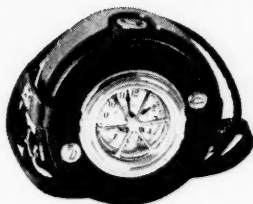
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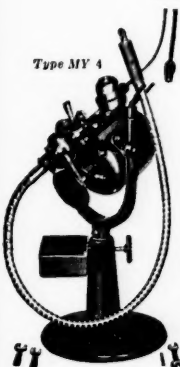
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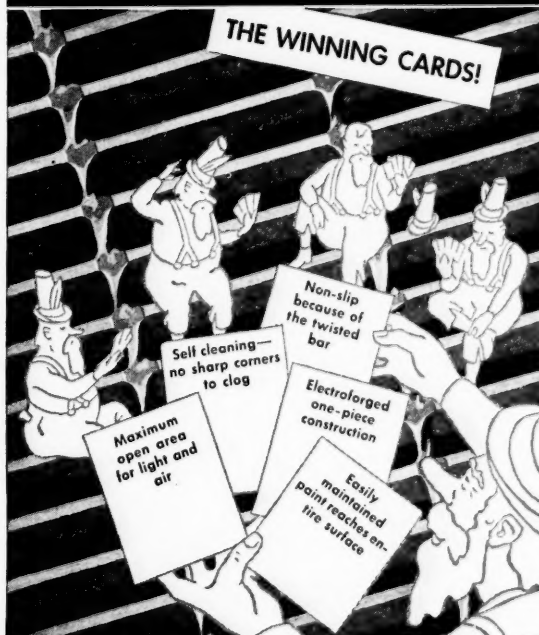
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Passenger-Cargo Ships For the South

(Continued from page 31)

deck, amidship and aft, in large, modern rooms equipped with beds, reading lamps, writing desks, settees and armchairs. All rooms are mechanically ventilated by ILG marine blowers, and in addition all shell and deck, in way of quarters, is insulated against tropical heat which these vessels will encounter. Separate mess rooms with individual pantries are provided amidship for the unlicensed personnel and for the officers, whose recreation room is immediately adjacent to their mess hall.

The steam generating plant of each vessel consists of two Babcock & Wilcox single pass Marine boilers with water wall side tubes, "U" type superheaters and horizontal air heaters. Each boiler is provided with four Babcock & Wilcox decagon oil burners. Forced draft is supplied by two American Blowers, so arranged as to be operated singly or together. Bailey Combustion Control equipment is installed to provide maximum automatic operation. The boilers are installed with the drums in the fore and aft direction, permitting a wide firing aisle on the ship's centerline.

Although the boilers were designed for 500 #/sq. in., the vessel is operated with steam at 450 #/sq. in. and 750° F. total temperature at the superheater outlet. Each boiler has a waterheating surface of 5,615 sq. ft. and an air heating surface of 3,322 sq. ft. The normal output of both boilers is approximately 69,000 lb. per hour. Desuperheater coils within the main drums furnish saturated steam for the steam-driven auxiliaries. The boilers are equipped with Diamond soot blowers.

The main propelling unit, manufactured by General Electric, is a high-speed, cross-compound double reduction geared turbine driving a four blade, right hand, solid, 19 ft. 3" diam., 17 ft. effective pitch, manganese bronze propeller. The turbines and gears are designed for a maximum of 8600 S. H. P. at approximately 112 R. P. M.; it is expected, however, to operate the vessel at 7800 S. H. P. at 105 R. P. M. when maintaining a sustained sea speed of 16½ knots. The astern turbine, located in the low pressure casing, is designed for at least 40% of the normal ahead power. The main thrust bearing, Kingsbury type, is arranged in a housing on the forward end of the low speed gear casing. Steam is bled at two points for feed water heating, make-up feed evaporator, and other minor services.

The main condenser, manufactured by Bethlehem Steel, is a single pass condenser, having a total cooling surface of 8500 sq. ft., and will operate at 28½" Hg. vacuum when supplied with 14,500 G. P. M. of cooling water at 75° F. The condenser is mounted athwartship directly beneath the turbine, and is supported entirely by the low pressure turbine flange. The main air ejector unit, manufactured by the C. H. Wheeler Co., consists of two 2-stage ejectors mounted on a surface type inter and after condenser.

Two turbine geared D. C. generator sets, manufactured by General Electric, each having a capacity of 350 K. W., are installed with their axes fore and aft on the starboard engine room flat. Under normal operating conditions, the turbines will operate with superheated steam under the same conditions as that to the main turbine. An auxiliary steam line supplying desuperheated steam is also installed. At sea the turbines will exhaust

to the main condenser; an auxiliary condenser is provided for port use.

The auxiliary condenser, manufactured by Bethlehem Steel, is a two-pass condenser having a total cooling surface of 1100 sq. ft. and will operate at 28½" Hg. vacuum when supplied with 1800 G. P. M. of cooling water at 75° F. The auxiliary air ejector unit, manufactured by C. H. Wheeler Co., consists of two 2-stage ejectors mounted on a surface type inter and after condenser. The emergency source of power and light is the 75 K. W. generator in the dummy stack which has already been referred to.

The first stage heater is an Elliott, vertical, marine, direct contact type, deaerating feed water heater, with self-adjusting steam atomizing nozzles, and is located in the engine room casing. The unit is capable of delivering a total of 78,500 lb. per hour of feed water at not less than 240° F. when supplied with sufficient steam at 10 #/sq. in. gauge pressure and with inlet water to the vent condenser at 95° F. The heater has a storage capacity of 1500 gal.

The second stage heater, manufactured by Bethlehem Steel, is a closed vertical 4-pass, tubular heater having a total heating surface of 168 sq. feet. Feed water is to be heated from 240° F. to 300° F. at this stage.

The make-up feed evaporator is a Davis Paracoil, vertical, high pressure type unit with submerged coil heating surface. The evaporator has a capacity for evaporating 2400 lb. of 76° F. raw fresh water to vapor at 10 #/sq. in. gauge pressure. The make-up feed evaporator and the salt water evaporator are installed on the port engine room flat.

The salt water evaporator is a Davis Paracoil, vertical, high pressure type unit with submerged coil heating surface. The evaporator is capable of continuously delivering 60,000 lb. of vapor per 24 hr. when evaporating sea water with steam supplied to the coils at 70 #/sq. in. gauge pressure.

The distiller is a Davis Paracoil unit having a capacity of 6000 gal. of distillate per 24 hr. when supplied with vapor from the salt water evaporator and with cooling water at 85° F. inlet temperature.

Two lubricating oil coolers, Bethlehem Steel manufacture, each having a capacity to cool 300 G. P. M. of oil from 140° to 120° F., using 500 G. P. M. of cooling water at 84° F., are mounted on the after starboard engine room bulkhead.

A Sharples lubricating oil purifier and a lubricating oil heater, each having a capacity of 200 G. P. H. are installed on the lower engine room level.

Two lubricating oil gravity tanks and two storage tanks, each having a capacity of 1000 gal., are installed in the engine room casing. The gravity tanks are provided with steam heating coils for use when the tanks are used for settling purposes.

The lubricating oil sump tank is located beneath the main gear and is formed by a recess in the inner bottom tank. The capacity at normal operating level is sufficient to assure proper submergence of the pump suction under all conditions, including a 20° list of the ship.

The refrigeration and air conditioning compressing, condensing, and receiving equipment is installed on the port side, lower engine room level. Three Carrier, Freon compressors, all of equal capacity, are each driven by a 15 H. P. General Electric motor. The refrigeration is divided into three plants—ship's store (4

tons approximately), refrigerated cargo (6.8 tons approximately), and air conditioning (12.6 tons approximately).

The engine and boiler room auxiliaries are practically all electrically driven, the principal exception being the two Warren multi-stage, main feed pumps driven by Westinghouse turbines.

The engineers' store room and machine shop are located on the port, engine room flat. The machine tools, consisting of lathe by R. K. LeBlond, a Steptoe shaper, champion drill press, and grinder are all independently electric motor driven.

The deck machinery, furnished by American Engineering Co., is all electrically driven by General Electric motors. Fourteen cargo winches, each powered with a 50 H. P. motor, are installed adjacent to the hatches on the shelter deck. Two of the winches, those located at the forward end of hatch No. 2, are back geared for handling loads up to thirty tons. A thirty ton boom is provided for this purpose; all other booms have a designed capacity of five tons. Two 35 H. P., single drum, warping winches are located on the after shelter deck. The 75 H. P. anchor windlass is spur geared having two wildcats for 2½" chain and two warping heads keyed to the main shaft. The windlass will lift simultaneously two anchors from a thirty fathom depth, at a chain speed of not less than 30 ft. per minute.

The steering gear, furnished by American Engineering Co., is an electro-hydraulic opposed ram type, having the rams mounted athwartship. The main steering gear has two power units, each consisting of a variable stroke hydraulic pump driven by a 40 H. P. General Electric motor. The main steering gear control is from a hydraulic telemotor stand in the wheelhouse to a receiving unit in the steering gear room, and from a two-unit Sperry Gyro Pilot, with transmitter in the wheelhouse and receiver connected to the mechanical control in the steering gear room. A stand is also provided on the shelter deck, aft, with mechanical connection to the differential control. An auxiliary hand-hydraulic steering gear consisting of rams and cylinders separate from the main ram and connected to an independent tiller is operated from the after shelter deck. Each of the main steering gear power units is capable of moving the rudder from hard-over to hard-over, a total of 70, in 30 seconds, with the vessel going ahead at 17½ knots.

The communication equipment consists of the following: a radio telegraph, radio telephone, the afore-mentioned life boat radio, and a modern direction finder. This equipment complies with FCC regulations, as well as those of the various international conventions. The main radio telegraph transmitter is a 200 watt set, providing five frequencies in the band from 375-500 kilocycles. There is an auxiliary 150 watt short wave transmitter which covers frequencies from 5.5 to 18 megacycles. This latter has an operating range of several thousand miles. There is an emergency transmitter and receiver operating on a 12-volt storage battery which has a life of six hours. The main receiver covers a range from 15 to 600 kilocycles, and the short wave receiver covers from 540 to 30,000 kilocycles. The lifeboat radio telegraph transmitter and receiver operates up to 500 kilocycles on a battery similar to that operating the emergency set. The direction finder operates on a principle similar to those in planes, using a radio beam to take bearings on light ships and lighthouses

(Continued on page 58)

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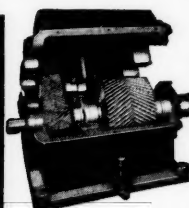
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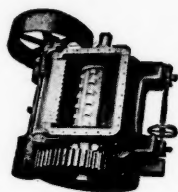
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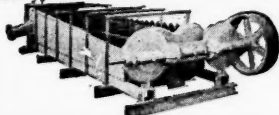
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Highways For National Defense

(Continued from page 27)

of such strategic importance that they deserved special attention and to indicate the order of priority in which improvements should be made. Equally important was the determination of the vehicle weight and traffic volume capacities needed in the roads and bridges that may be required for military use under any circumstances likely to arise.

As a result of the studies made, the War Department has designated roads of special military interest under two general heads.

First, there has been mapped a general system of 78,000 miles of main highways joining strategically important points and vital areas throughout the United States. Second, approximately 6,000 miles of road within and adjacent to 101 military reservations important as army concentration points have been indicated.

Standards of design for roads and bridges which should govern the improvement of roads of both these classes have been decided upon after study of the weight and dimensions of the army's mobile equipment.

With this information indicating the location and kind of highways needed for military use, the Public Roads Administration and the States highway departments have been using the highway planning survey data in developing a detailed program of improvements essential in conditioning the routes for war use.

The strategic system, 78,000 miles in length is composed almost entirely of Federal-aid and State highways. There are few places on the system where the surfacing is lacking in strength. Portions of the surfacing need to be widened, at numerous places there is not enough overhead clearance and many sections have sharp curves, steep grades and short sight distances.

Weak bridges are the most critical factor. There are many that have a rated capacity of less than 30,000 pounds which has been the minimum standard for military equipment. Strengthening these weakest links cannot wait until the enemy is at hand. It is possible that advances in military science may make it necessary for our bridges to carry still heavier loads and increase the number to be strengthened or rebuilt.

Twelve percent of all bridges on the strategic system are not capable of carrying repeated loads of as much as 30,000 pounds. On the average there is a weak bridge every 35 miles. Most of these bridges are now carrying peace-time loads much in excess of what is safe. Their present use involves risk to the users. A war-time use may invite disaster.

A large part of the 6,000 miles of approach roads to military reservations and concentration points are not main highways and much work remains to be done on them.

Competent organizations are now ready to begin all necessary improvements. There is available the machinery of the 48 State highway departments and of the Public Roads Administration, ready to go to work. The American Association of State Highway Officials, by action of its Executive Committee has offered its services to the President. As Federal Works Administrator, I plan to appoint very soon an advisory board composed of outstanding State highway officials to work closely with the Public Roads Administration and other branches of the

Federal Works Agency in planning and completing highway improvements that are urgent from the military viewpoint.

At the request of President Roosevelt and in collaboration with the Advisory Commission to the Council of National Defense and the War and Navy Departments, I am having the Public Roads Administration quickly make a current inventory of our highway needs from the viewpoint of national defense and as a result of this survey will advise the President of such steps as appear necessary. In accordance with this request particular attention will be paid to the strength of bridges, the width of strategic roads, adequacy of ingress to and egress from urban centers, and the servicing of existing and proposed Army, Naval, and Air bases.

Just before the Senate adjourned for the week of the Republican Convention, it passed highway legislation including the following section:

"In approving Federal-aid highway projects to be carried out with any unobligated funds apportioned to any State, the Federal Works Administrator shall give priority of approval to and expedite the construction of projects that are recommended by the appropriate Federal defense agency as important to the national defense."

Acceptance of this provision by the House of Representatives will aid materially in speeding up the construction of needed defense highway improvements. Once this legislation is enacted our ability to assist the program of national defense by highway construction will only be limited by the extent of our unobligated funds.

Tennessee's New Airplane Plant

(Continued from page 33)

trusses, leaving unobstructed working space below.

The factory is heated by a circulating air system and during all seasons of the year filtered air is supplied. The plant is air-cooled in summer.

Warm air is distributed throughout the building by means of underground concrete ducts, with flush type outlets located in the floor along the outside walls and column type outlets at the base of the center building columns.

Excessive infiltration is counteracted at the large sliding doors in Assembly Department by a curtain of warm air which rises from a full length grille covered duct located in the floor at the foot of the doors.

This system is so arranged that a fresh air supply, recirculated air from the building, or both can be returned to the heater rooms through return air openings located on floor line at each of the heater rooms. Damper controls allow for the recirculating of air from the building, for fresh air to be taken in from the outside, or for any proportional mixture of the two. By returning the air in this manner the cool air is drawn off the floor and replaced by warm air, creating uniform temperatures throughout the building and eliminating drafts. All the recirculated or fresh air drawn into the heater rooms by the blowing fans passes over the heater proper, recovering any heat lost by radiation, and before being forced through the heater into the distributing duct system. The entire system is automatically and thermostatically controlled.

The factory is equipped with two 60,000 C. F. M. Lee Brick Set Tubular Direct-Fired Warm Air Heaters, each capable

of delivering 6,200,000 B. T. U.'s an hour, or a total of 12,400,000 B. T. U.'s per hour, with an overload capacity of 20% for short and warming up periods.

Both heaters, which are coal fired by Combustion Engineering Company's Skelly Type Stokers, are located in pits below the floor level; one at the northwest corner and the other at the southeast corner of the building.

Electric power is employed in practically every operation, from multiple machine shop uses to a large 200 kilowatt "spot welder." Electric heat-treating furnaces are used for precision heat-treating of certain metal parts.

These many uses of electricity in the manufacturing of airplanes, in addition to the large amount of power required for the modern lighting system, air conditioning and ventilation, adds a new "load" of 600 kilowatts to line of the Nashville Electric Service.

To take care of this added load, several miles of transmission lines were rebuilt, and the 13,800-volt high tension lines of the Nashville Electric Service were extended from the Murfreesboro Road to the power plant on the Couchville Pike.

For distribution of power throughout the plant, a large substation has been erected on top of the roof, approximately in center of building, in which five transformers are installed to reduce the voltage to plant requirements.

The distribution for light and power through the floor of the switchboard room into the factory area is a very flexible arrangement, the feeders and conduits being exposed above the trusses and therefore accessible at all times. The central location of the switchboard has eliminated costly long secondary feeders.

The lighting arrangement in the Factory is designed to give an average lighting level of 25-foot candles in both the low and high bays.

All panel equipment, including the switchboard, is of the dead front safety type and designed for increased light and power capacity should the occasion arise.

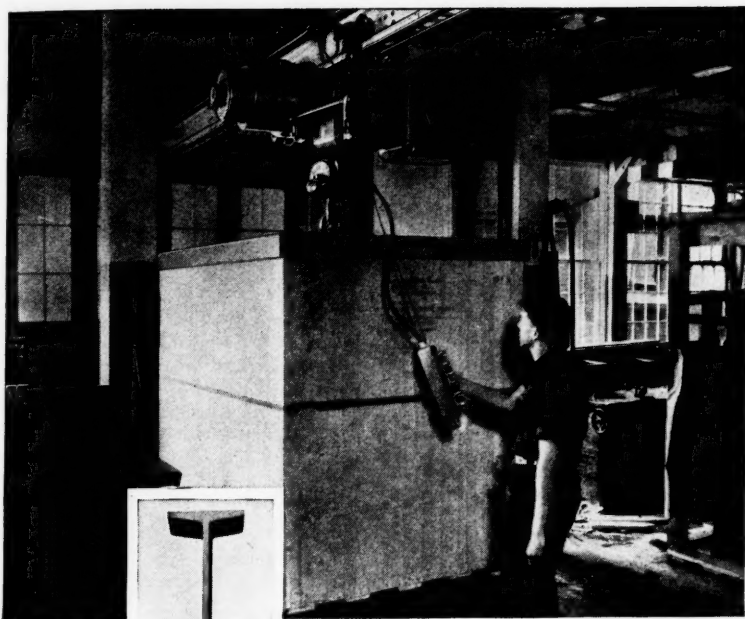
A 300,000 gallon storage tank, divided in two parts and supplied by City water main, is located adjacent to plant. A pump room, containing emergency fire pumps and auxiliary pressure pump and tank, is connected directly to the sprinkler system which serves the whole plant. Water from the air conditioning system in offices is returned to water-cooling spraying equipment located on top of water storage reservoir.

The Administration Building is in front of an connected to the factory portion by a covered 10 ft. wide passageway. It is 42 ft. x 242 ft., and two stories in height.

The exterior of the building is of brick with the design interest depending upon the continuous bands of projected windows which produce a pattern of light and shade. Stone sills are used beneath windows and projecting lines of brick above, giving proper balance of areas. The only strictly decorative detail on this building is the entrance which, in design, cannot be characterized as ornamental. Its sole strength lies in its structural elements and the continuity and flow of the stone plinths in bold relief to the glass brick, which accentuate the exterior brick work of the building.

Located on the first floor are the business and executive offices, each office having an outside exposure, with central corridor running from the lobby to each end of the building. Partitions throughout are of hollow tile, plastered. Flooring is composed of asphalt tile, laid on concrete

(Continued on page 58)



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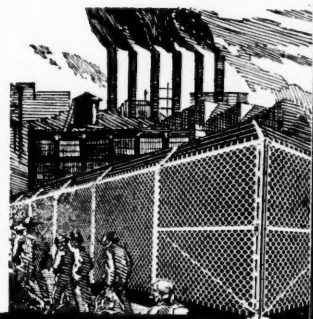
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Tennessee's New Airplane Plant

(Continued from page 56)

base. Acousti-ceilings are employed in some of the executive offices.

The second floor is used entirely for engineering, drafting and layout work, and has no dividing partitions. The floor is faced with yellow pine wood flooring.

The air conditioning system in the offices consists of a supply unit located in the basement area, and furnishes conditioned air to the first and second floors.

The Administration Building is heated by a combination of forced circulation hot water radiation and forced hot air system with the heating elements in the air system supplied from the hot water mains.

Water for the system is heated by means of a welded steel Spencer hot water boiler located in the same pit as the factory heating plant. Centrifugal pumps circulate hot water for office building radiators. This boiler is fired by a forced draft stoker which is controlled by a Raymond Duostat.

The hot water mains are run overhead through the factory and across the connecting passage to the basement of the office building, where branches are taken

off to supply the heating coils in the ventilating system before rising to the first floor ceiling where the mains are run above the suspended ceiling to supply the radiators in the offices.

The office building is entirely indirectly lighted and is designed for a minimum of 20-foot candle intensity for private offices and 25-foot candles in the larger areas.

Obstruction lights on the roof of the factory and office building are installed in accordance with the Civil Aeronautics Authority.

Passenger-Cargo Ships For the South

(Continued from page 54)

with radio beacons. It has an operating range from 270 to 500 kilocycles. Finally, the Western Electric program sound system, equipped with outdoor water-proof loud speakers and indoor speakers, provided principally for passenger and crew entertainment, makes it possible, through its all-wave receiver, to electrically relay any desired radio program while the three movable microphones, which can be used in any part of the ship either singly or in conjunction with one another, can by means of cut-in, provide additional emergency means of instruction.

As for certain miscellaneous equipment for these vessels, the anchors and chain were supplied by the Baldt Anchor, Chain, and Forge Co. For each vessel there are two bow anchors, weighing 9,415 lb. each, a spare anchor, weighing 7,980 lb., and a stream anchor, weighing 3,315 lb. There are 900 feet of chain for each bow anchor, 90 ft. lengths. All manila rope for the ships was by the Columbia Rope Co. The streamlined Contrarudders by Th. Goldschmidt Corp., are designed to improve propulsive efficiency and enable easier turning. The paint was furnished by Devoe and Reynolds Co., and the Federal Paint Co. The safes are by York Safe and Lock Co., and the clocks, of which there are several, are by Seth Thomas.

WELDING—

Publication—"The P&H Weld," to be issued regularly to those interested in welding, particularly the welding operator; purpose of the publication is "to act as a central bureau for receiving and disseminating information on current welding practices"; first issue presents discussion of electrodes and their applications, an article on rebuilding worn threads on a sleeve piston, a chart of the A. S. M. E. Boiler Construction Code compiled by the Hartford Steam Boiler Inspection and Insurance Company, and other features; readers invited to contribute material on their welding experiences for the benefit of other readers.

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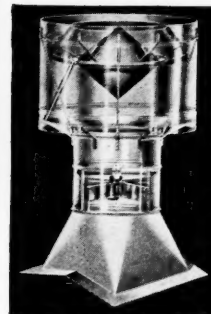
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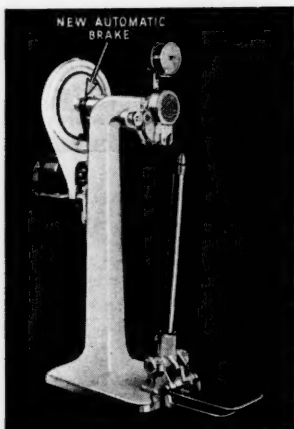
REALTORS

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INSURORS

New Model Ideal Bottom Stitcher

Incorporating a number of new and important features, a new model of the Ideal Bottom Stitcher, used for sealing carton bottoms, has been announced by the Ideal Stitcher and Manufacturing Company, Racine, Wis. Among these new features are: speed control, offering a variable range of 150 to 300 stitches a minute; simplified stitcher head which, when opened, allows immediate access to all working parts; dual treadles placed lower to floor to reduce operating thrust to 5



Ideal Bottom Stitcher Incorporating New Features

inches, and automatic brake. The brake, consisting of a band around the clutch hub, releases as soon as the clutch pin engages, allowing the full flow of power to the stitching head. No conscious effort on the part of the operator is required, as the brake engages automatically when the treadle is released. It is explained that these features are found on the Ideal straight-arm, angle-arm and angle-head models, but not on the corner or inverted head stitchers.

Filter Delivers Oil-Free Air

Primarily designed for the removal of the slightest traces of oil from compressed air lines, a new Model AAPHS Protectomotor Air Filter has been announced by the Staynew Filter Corporation, Rochester, N. Y. In addition to removing oil, the filter, it is claimed, effectively prevents the passage of moisture, dust, dirt, pipe scale or other foreign matter commonly found in pipe lines for air supply. First built to solve a difficult

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problem in instrument protection, Model AAPHS was later adapted for use on the combustion control system of an electric power unit. Several installations were also made for instrument protection and many new uses developed rapidly. It is now a standard item in the comprehensive Staynew line of filters for air, gases and liquids.

CENTRIFUGAL PUMPS—

Bulletin 5972—illustrating and describing the Fairbanks-Morse line of two-stage, split-case centrifugal pumps with capacities up to 550 G.P.M. at heads ranging up to 600 T.D.H., suited to all classes of general pumping service where the liquid is of low viscosity and free from foreign matter. Fairbanks, Morse & Co., Chicago, Ill.

Business Opportunities

For Sale—Townsite on prettiest lake in South Florida. Excellent rail and highway facilities, lights, soft water, hotel, stores, \$50,000 worth of streets, good school, congenial people and no bonded debt. Unusual opportunity for developer of means. For details write "Florida", c/o Mrs. Record, Balto., Md.

Garment Factory, 50 by 100 feet, with or without machinery. 100 acre farm, \$2,500.00. House, four acres \$700.00. Terms \$15.00 month. Charles Witmer, Crewe, Virginia.

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Sales minded individual can purchase interest in mill supply co., est. 33 years; near Cleveland; large volume; well rated clientele; exceptional possibilities; stand strict investigation; \$11,000; working capital required. THE APPLE COMPANY, CLEVELAND, O.

Wanted: To communicate with factories for close outs in low priced shoes, clothing, dresses, etc. to meet competition of bankrupt stocks. Must be cheap or cannot handle. Jay Fraley, Pikeville, Ky.

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FOR SALE: 275 acres near Wilson Dam, on paved roads, two high power lines. Well located for any purpose. Unencumbered. 813 N. Wood Ave., Florence, Alabama.

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